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**RCRA Facility Assessment
UNO-VEN, Chicago Refinery
ILD041550567
1978030004 -- Will County
Log No. B-162**

**Illinois Environmental Protection Agency
Bureau of Land
Permit Section
Corrective Action Unit
September 1996**

 9/24/96

Prepared by Date
Clayton Bloome

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Approved by Date
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I. EXECUTIVE SUMMARY

The purpose of this RCRA Facility Assessment (RFA) report for the subject facility is to: (1) identify and gather information on releases; (2) evaluate Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) for potential/actual releases to all environmental media; (3) make preliminary determinations regarding potential/actual releases from SWMUs/AOCs and the need for further actions and interim measures; and (4) screen from further investigation those SWMUs which pose no threat to human health of the environment.

Uno-Ven Company in Lemont, Illinois is a petroleum refinery which processes crude oil into finished petroleum products such as gasoline, fuel oils, and petroleum based cleaning fluids. Hazardous waste are generated primarily from waste water treatment systems in the form of oily sludges and process waste in the form of spent catalysts. Hazardous waste are also generated from cleaning process tanks. "It is a moderate priority" facility under the RCRA NCAPs program.

The initial Part A was dated November 17, 1980. A Part B was submitted on July 16, 1984 for the Land Treatment Facility. The latest RCRA Part B Post-Closure Permit Application is dated October 13, 1995 and was submitted due to the post-closure requirements of the Land Treatment Area located in the Southeastern part of the refinery. In this submittal a Summary of Solid Waste Management Unit Information reported 32 SWMUs being present at the facility. These units include; Container Storage Areas, Waste Water Treatment Units, Waste Piles, Waste Recycling Operations, land farms, Surface Impoundments, Waste Treatment Detoxification, Underground Storage Tanks, and other various units.

Based upon a review of the information acquired and summarized for this site, the following generalizations can be made:

1. Based of the RCRA Facility Assessment which was conducted by the Agency for this facility, 43 Solid.Waste Management Units are present.
2. The following Solid Waste Management Units are not required to be investigated in the RCRA Facility Investigation: Drum Storage Area, SWMU No. 6; Demolition Debris, SWMU No. 8; Former Process Area, SWMU No. 9; Empty Drum Collection at Maintenance Building, SWMU No. 26; Laboratory Container Storage Area, SWMU No. 27; Drum Storage Area at Building South of Alky Unit; Braun Building, SWMU No. 29.
3. The Land Treatment Facility, SWMU No. 14A-D and Groundwater Management Zone, SWMU No. 33 will be addressed in the post-closure permit seperately from the other

SWMUs.

4. The RFI efforts must also focus on potential releases to groundwater on a area-wide basis. This additional effort is necessary because the refinery is quite old and was rebuilt in the early 1970s. To conduct this area-wide investigation, it will be necessary to divide the Uno Ven property into Five subareas (the South Plant Refinery, the East Tank Farm, the West Tank Farm, the North Plant Refinery, and the Canal Dock.

II. GENERAL DESCRIPTION

II. A. Facility Description

II. A. 1. Name, Owner, Operator and Location

Uno-Ven Chicago Refinery, a joint venture between Unocal and Petroleus de Venezuela, is located at 135th street & New Avenue, Lemont, Illinois. The facilities legal owner is The Uno Company and the operator is the Uno-Ven Company. The property is located in Will County and includes Sections 25,26, 35 and 36 in Township 37N and Range 10E. A small parcel of the refinery is also located in Section 2 of Township 36N and Range 10E.

IL Identification No.: 1978030004
USEPA Identification No: ILD041550567

The refinery is bounded to the west and north by the Illinois and Michigan Canal, to the east by Smith Road and to the south by 135th Street, covering approximately 900 acres.

II. A. 2. Facility Operations

The Chicago Refinery is a petroleum refinery with a rated capacity of 153,000 barrels (6,426,000 gallons) per day, employing approximately 750 people. Unocal Corporation (Unocal) operated the refinery until 1989 at which time The Uno-Ven Company (UNO-VEN) was formed through a joint venture between Unocal and Petroleus de Venezuela. The standard industrial cod (SIC) for the refinery is 2911 (petroleum refining). The refinery produces the following major types of products:

- (1) Liquefied Petroleum Gas
- (2) Gasoline
- (3) Petrochemical Solvents
- (4) Aviation Turbine Fuels
- (5) Heating Oils
- (6) Diesel Fuels
- (7) Petroleum Coke

II. A. 3. Types of Waste Generated at the Facility

The Hazardous Waste Permit Application Part A identified the following hazardous waste as being generated at this facility: API Separator Sludge (K051), nonhazardous wastes generated at the facility include clear well sludge, cooling tower sludge, heavy oil sludge, storm water basin dredging, and water/wastewater treatment sludge.

II. A. 4. Identification of HWMUs and SWMUs at the Facility

Section L of the application identifies the following Solid Waste Management Units (SWMUs) as being present at the facility.

- 1) Former Empty Drum Storage Area, SWMU No. 1
- 2) Former Process Wastewater Line ("Big Inch"), SWMU No. 2 A-E
- 3) Former North Plant API Separator and Current Above-Ground Corrugated-Plate Separator, SWMU No. 3
- 4) Hot Oil Line, Seneca Petroleum Storage Tank, SWMU No. 4
- 5) Former Dump Area for Lime Sludge; Seneca Tank Location, SWMU No. 5
- 6) Drum Storage Area, SWMU No. 6
- 7) Interceptor Trench; Canal Dock, SWMU No. 7
- 8) Demolition Debris, SWMU No. 8
- 9) Former Process Area, SWMU No. 9
- 10) North Plant Heat Exchanger Bundle Cleaning Pad, SWMU No. 10
- 11) Recycle Tanks, 11A-Mobil Interface Tank 436; 11B-301 Tank, SWMU No. 11 A-B
- 12) Tank 201 and Proximate Area, SWMU No. 12
- 13) Sludge Drying Area, SWMU No. 13
- 14) Land Treatment Facility, SWMU No. 14A-D
- 15) Wastewater Treatment Sludge Decant Basins, SWMU No. 15A-B
- 16) Wastewater Treatment Sludge Decant Basin, SWMU No. 15C

- 17) Sludge Application Area, SWMU No. 16
- 18) Intermittent Stream/Storm water Conveyance, SWMU No. 17
- 19) Waste Staging Areas, SWMU No.18
- 20) Former Sludge Drying Areas, SWMU No. 19 A-D
- 21) Active Drum Staging Area, SWMU No. 20
- 22) Vertical Oil Storage Tanks at the Storm water Basin (SWB), SWMU No. 21
- 23) Storm water Basin, SWMU No. 22
- 24) Water and Wastewater Treatment Plant (WWTP), SWMU No. 23
- 25) Former API Separator, SWMU No. 24
- 26) Heat Exchanger Bundle Cleaning Pad, SWMU No. 25A-B
- 27) Supplementary Heat Exchanger Bundle Cleaning Pas-Cleaning Building, SWMU No. 25C
- 28) Empty Drum Collection at Maintenance Building, SWMU No. 26
- 29) Laboratory Container Storage Area, SWMU No. 27
- 30) Filter press and Sludge Dewatering at Alky Unit, SWMU No. 28
- 31) Drum Storage Area at Building South of Alky Unit; Braun Building, SWMU No. 29
- 32) Former PLO UST at Fuels Loading Rack Area, SWMU No. 30
- 33) Former USTs Located at Former Service Station and Active Solvent Loading Rack Area,
SWMU No. 31A-E
- 34) Former Process Blending UST at the Process Blend Center, SWMU No. 32

Additional SWMUs found during the efforts involved in conducting this assessment are as follows:

1. Groundwater Management Zone, SWMU No. 33
2. French Drain System(north of 500 series tanks), SWMU No. 34
3. Red Die Spill Area (Near tank 206), SWMU No. 35
4. Former USTs (located near maintenance building), SWMU No. 36
5. Former USTs (located near WWTP outfall), SWMU No. 37
6. Process Sewer System, SWMU No. 38
7. Storm Sewer System, SWMU No. 39
8. Open Flow Ditches, SWMU No. 40
9. East Tank Farm, SWMU No. 41
10. West Tank Farm, SWMU No. 42
11. Product Pipelines, SWMU No. 43

A more detailed discussion of the SWMUs identified above is contained in Section III. It must be noted that Uno-Ven is a "moderate Priority" facility under the RCRA NCAPs program.

II. B. Exposure to Contamination from the Site

II. B. 1. Topography

The Uno-Ven facility is located in Will County approximately 1 ½ miles southwest of the town of Lemont. The regional topography varies with ground surface approximately 730 ft M.S.L. at the southeastern edge and 580 ft M.S.L. at the western edge of the property. A bluff runs through the middle of the facility and the western portion of the facility is bordered by the I & M Canal. A topographic map is included as attachment 1.

II. B. 2. Geology/Hydrogeology

The RCRA Part B Post-Closure permit application provides the following information regarding the geology/hydrogeology at the site.

II. B. 2. I. Geology

The facility is divided to the east and west by a bluff with elevations around 700 msl above the bluff and 580 msl below the bluff. Above the bluff the uppermost geologic unit at the Uno-Ven facility consist primarily of yellow brown to brown silty clay grading to dark gray silty clay with a trace of pebbles. Occasional, discontinuous lenses of silty sand (generally less than one foot thick) are present within the clay till. This clay unit ranges in thickness from approximately 18 feet (ft) to 61 ft with an average thickness of about 30 ft. The unit typically extends from the land surface downward to a subsurface elevation of about 660 ft msl.

The second unit consist of: 1) pebbly, soft to firm, clayey silt to sandy, clayey silt till of direct glacial origin and 2) sand units of preglacial lacustrine and fluvial origin. Minor discontinuous layers of gravel, generally less than 2 ft thick, occur sparsely within the Lemont Drift. The till units within the drift are gray to olive brown in color and contain pebbles that are angular, whit to light gray dolomite casts. The sand and silty sand units are predominately olive brown to grayish brown and tend to be thicker and coarser grained in the lower portions of the drift. This unit is usually 50 to 73 ft thick and directly overlies the dolomite bedrock encountered at the site.

Below the bluff and underlying the above mentioned second geologic unit above the bluff bedrock consisting of dolomite that is typically yellow to light olive gray, microcrystalline, and moderately hard, with closely spaced fractures and occasional fossil structures replaced with cherty material. The dolomite is very uniform in texture and rock quality. It is relatively unweathered and there is little to no evidence of solution channels or interconnected solution vugs. The top of the dolomite occurs beneath the site at a subsurface elevation ranging from 606 to 596 ft in the southeast and northwest parts of the site, respectively. A cross-section of the facilities geology is included as attachment 2.

II. B. 2. II. Hydrogeology

There are four aquifer systems in the Chicago region that are located in the following geologic formations: (1) sand and gravel deposits of the glacial drift, (2) the shallow dolomite formations consisting mostly of Silurian dolomite, (3) the Cambrian-Ordovician Aquifer, and (4) the Mt. Simon Aquifer. The shallow aquifers (glacial drift and Silurian dolomite) are hydraulically connected and are recharged directly by seepage from precipitation. The Des Plains River is located northwest of the facility and is anticipated to be a regional discharge area for the shallow groundwater in the glacial drift and Silurian dolomite. The Chicago Sanitary and Ship Canal and the Illinois and Michigan Ship Canal are located between the Des Plains River and the Uno-Ven Facility.

Uno-Ven has conducted groundwater hydrogeology investigation in the area of the Land Treatment Farm (LTF) and maintains a Groundwater Monitoring Zone (GMZ) in the area of the Storm water Basins. The LTF groundwater investigation has shown groundwater to exist in the Silurian dolomite and the glacial drift. Measurements indicate that groundwater is approximately 620 ft msl or 60 to 80 ft below the ground surface. For the most part it seems to flow to the northwest toward the I & M Canal. In the area of the GMZ, measurements indicate groundwater is approximately 590 to 570 ft msl or just below ground level. For the most part groundwater in this zone seems to collect in the storm water basins. Maps indicating groundwater elevations for the LTF and GMZ are included in attachments 3 and 4 respectively.

II. B. 2. iii. Wells

The Division of Public Water Supply indicates two public wells are located on the Uno-Ven property. One of the wells is 1456 ft deep and the other is 187 ft deep. Another public supply well is located approximately 1 ½ miles to the southeast of the facility and is 100 ft deep. Romeoville is located approximately 1 ½ miles to the west of the facility and has several Public Supply Wells which range in depth from 156 ft to 1530 ft. There are approximately 12 private water supply wells on the facility and approximately 91 private water supply wells within 1500 ft of the Uno-Ven property boundary. These wells range in depth from 120 ft to 1500 ft. Attachment 4 and 5 show the location of the public wells and private wells in the area respectively.

II. B. 3. Populated Areas Near the Site

The Uno-Ven property is surrounded by Residential, Industrial, and Agricultural property. The southwestern portion of the facility exist in the Romeoville Municipal Boundary. The village of Romeoville is approximately 1 mile west of the facility and they are separated by the Des Plains River. The Lemont Municipal Boundary is approximately 3/4 of a mile to the east of Uno-Ven.

III. Characteristics of Solid Waste Management Units

SWMU No. 1

SWMU Name: Former Empty Drum Storage Area

Location: SWMU No. 1 is located near the west gate of the UNO-VEN Refinery (Refer to Figure L-1).

Designation of Type of Unit: Container Storage Area

General Dimensions and Structural Description: SWMU No. 1 was located outdoors on an asphalt pad approximately 50 X 50 ft.

Release Controls: The only release control is asphalt overlying the soil. Contaminants could migrate through cracks and/or off the edge of the pad.

Dates of Operation and SWMU Status: SWMU No. 1 operated from the 1970s until 1980. This unit has been closed.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: The wastes managed in this unit consisted of lubrication oils; the quantity of these wastes is unknown. It is not known if these wastes were considered hazardous wastes or if they contained potential hazardous constituents. The unit was closed by removal of the pad and stained soils which were landfilled in 1980.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: There have been no known releases in this area.

Sampling Summary: No sampling data is available in relation to SWMU No. 1

VSI Photographs of SWMU: A-11 and A-12 were taken towards the west. A-13 and A-14 were taken towards the south.

VSI Observations: A fence approximately 8 foot high with a gate on the east side surrounded this unit. Several barrels remained on the pad. Uno-Ven believes most are empty and they are unsure of the contents of any filled barrels. The barrels were in good shape and showed no evidence of leakage. Several gas cylinders were also stored here. Directly west of the pad the ground sloped down approximately 5 feet to a swampy area. Evidence of contamination was not observed.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Medium

Air: Low

SWMU No. 2 A-E

SWMU Name: Former Process Wastewater Line ("Big Inch")

Location: Along North Plant western boundary. Refer to Figure L-1 for the location of this unit.

Designation of Type of Unit: Wastewater Treatment Unit

General Dimensions and Structural Description: This unit consists of an underground wastewater transfer line which extends from the northernmost process unit within the UNO-VEN Refinery to the storm water basin (SWB). Sumps were installed in the line to recover oil entering the line due to backflow when water levels in the SWB are high. The sumps minimized oil seepage from the line. The location of the sumps are designated by the letters A through E along the wastewater line (Refer to Figure L-1).

Release Controls: 5 sumps were installed to oil seepage from the line.

Dates of Operation and SWMU Status: This unit is currently operating. In April 1991, process wastewater was removed from the line. Only storm water and non-process wastewater are currently conveyed in the line.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: Oily wastewater has been known to seep from the line during periods when the water level in the SWB was high. The amount of wastewater released is unknown. The oily wastewater released potentially contained petroleum hydrocarbon constituents included in the Skinner List. The Skinner List includes constituents which the United States Environmental Protection Agency identified as potentially present in petroleum refinery wastes. The Skinner List is presented in Table L-1. It is not known if these wastes are considered a hazardous waste.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit

VSI Photographs of SWMU: C-11 Northern most sump. Picture taken towards the south.

VSI Observations: Water level was 20 ft below ground surface of sump. Oil sheen could be seen on top of water. Sumps are 1/4 inch thick steel tube approximately 2 feet in diameter which is installed into bedrock. Serves as cutoff to I&M Canal.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 3

SWMU Name: Former North Plant API Separator and Current Aboveground Corrugated-Plate Separator

Location: In north plant. Refer to Figure L-1 for the location of this unit.

Designation of Type of Unit: Wastewater Treatment Unit

General Dimensions and Structural Description: The former API Separator consisted of a concrete in-ground system, and the Corrugated-Plate Separator is an existing aboveground steel structure.

Release Controls: Curbed concrete pad in good condition.

Dates of Operation and SWMU Status: The status of this unit changed in 1984 when the API Separator was removed and the excavation partially backfilled before a cooling tower basin was constructed in the remaining excavation. The aboveground Corrugated-Plate Separator was installed over the former API Separator location. This unit is currently in operation.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The waste managed in this unit is oily wastewater; the volume managed is unknown. The wastewater treatment sludges which were also generated periodically contain Skinner List constituents.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: C-12 Picture taken toward southeast.

VSI Observations: There is no evidence of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 4

SWMU Name: Hot Oil Line, Seneca Petroleum Storage Tank

Location: Refer to Figure L-1 for the location of this unit.

Designation of Type of Unit: Other

General Dimensions and Structural Description: No information is available.

Release Controls: Gravel dike.

Dates of Operation and SWMU Status: Seneca Petroleum leased property from UNO-VEN and operates of an aboveground storage tank(s). In 1992 a leaky line was replaced.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The type of waste spilled in this area was solidified asphalt feedstock; the amount is unknown. The waste is not considered a hazardous waste. Potential hazardous constituents in the waste include semivolatile organic compounds in the Skinner List.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: C5 Taken towards the north.

VSI Observations: No visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Low

Groundwater: Low

Surface water: Low

Air: Medium

SWMU No. 5

SWMU Name: Former Dump Area for Lime Sludge; Seneca Tank Location

Location: This unit is located in the area of the old refinery operation (Refer to Figure L-1).

Designation of Type of Unit: Waste Pile

General Dimensions and Structural Description: No information is available.

Release Controls: Gravel dike.

Dates of Operation and SWMU Status: This unit was an aboveground drying bed which was used to store lime sludge. The unit operated from sometime in the 1950s until 1969. The lime sludge was excavated from the area of the current Seneca Vacuum Tower Bottoms Tank location and stockpiled in the same vicinity. In 1985, the sediments were removed for off-site disposal at a landfill.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The waste managed in this unit was hot lime softener sludge (CaCO_3) which was precipitated

from boiler feed water. The quantity of the waste managed is unknown. The waste is not considered hazardous waste.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous constituents in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: C4 Picture taken towards the north.

VSI Observations: No visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Low

Surface water: Low

Air: Low

SWMU No.6

SWMU Name: Drum Storage Area

Location: This unit is located at the Canal Dock.

Designation of Type of Unit: Container Storage Area

General Dimensions and Structural Description: No information is available.

Release Controls: None

Dates of Operation and SWMU Status: This unit was used for the temporary storage of 2 to 3 drums containing oil spill debris generated from the cleaning of the Chicago Ship and Sanitary Canal. The drums were removed in 1993.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

2-3 drums containing nonhazardous oil spill cleanup debris.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of hazardous waste or hazardous constituents.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: C7 Picture taken towards the north.

VSI Observations: No drums were present and there were no visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Low

Groundwater: Low

Surface water: Low

Air: Low

SWMU No. 7

SWMU Name: Interceptor Trench; Canal Dock

Location: Refer to Figure L-1 for the location of this unit.

Designation of Type of Unit: Other

General Dimensions and Structural Description: The interceptor trench extends into bedrock below the water level of the canal.

Release Controls: Runs back to Ballast Tank to North Tank Separator and then to Process Water Basins.

Dates of Operation and SWMU Status: The interceptor trench was installed in the early 1970s and was extended in 1992. The purpose of the trench is to intercept any free phase liquid hydrocarbon on groundwater, such that it does not enter the canal. All liquid entering the trench is pumped to the North Plant process sewer system.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The waste managed in this unit is a mixture of groundwater and liquid hydrocarbons. It is unknown if this waste is considered a hazardous waste.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituents in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: C8 Picture taken towards the south.

VSI Observations: Interceptor trench is underground.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 8

SWMU Name: Demolition Debris

Location: Adjacent to the canal dock road (Refer to Figure L1).

Designation of Type of Unit: Waste Pile

General Dimensions and Structural Description: No information is available.

Release Controls: None

Dates of Operation and SWMU Status: Demolition debris was placed as fill material prior to 1970. This unit is currently inactive.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

Demolition debris (i.e., bricks, cinder, ceramic (alumina balls) was placed as fill material; the quantity is not known. The debris is not considered to be hazardous waste.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: C6 Picture taken towards the south.

VSI Observations: No waste piles present. Not much evidence of Demolition Debris

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Low

Groundwater: Low

Surface water: Low

Air: Low

SWMU No. 9

SWMU Name: Former Process Area

Location: This unit is located east of Catalytic Reformer #1 (Refer to Figure L-1).

Designation of Type of Unit: Waste Pile

General Dimensions and Structural Description: No information is available.

Release Controls: None

Dates of Operation and SWMU Status: The former process area was utilized by Union Oil (Unocal) and UNO-VEN beginning in the early 1970s to store oil contaminated fill. Portions of the area are still used periodically for temporary storage of oil contaminated fill.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The potential hazardous constituents in the wastes stored in this unit are Skinner List constituents.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: D3 Picture taken towards the North.

VSI Observations: No units remain. Currently storage area for contractors.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Low

Groundwater: Low

Surface water: Low

Air: Low

SWMU No. 10

SWMU Name: North Plant Heat Exchanger Bundle Cleaning Pad

Location: Refer to Figure L-1 for the location of this unit.

Designation of Type of Unit: Other

General Dimensions and Structural Description: This unit is located on a curbed asphalt pad approximately 12-inches thick. No significant cracks are present in the asphalt. All liquids generated during cleaning processes are discharged to the sanitary sewer, after passing through screens to retain any solids.

Release Controls: Curbed concrete with two drains.

Dates of Operation and SWMU Status: This unit has been operating since the late 1980s until

the present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

Wastes managed in this unit consist of heat exchanger solids; the quantity is unknown. This waste contains chromium and lead, and is a listed hazardous waste (K050). The solids are hauled off-site for disposal or incineration, as appropriate. The wash water is routed to the refinery wastewater treatment plant.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: D2 Picture taken towards the south.

VSI Observations: Concrete in good condition.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 11 A-B

SWMU Name: Recycle Tanks: 11A - Mobil Interface Tank 436; 11B - 301 Tank

Location: Refer to Figure L-1 for the location of this unit.

Designation of Type of Unit: Waste Recycling Operations

General Dimensions and Structural Description: No information is available.

Release Controls: Gravel dike.

Dates of Operation and SWMU Status: Unit 11A is used to store commingled products from Mobil Oil pipeline shipments which are recycled at the UNO-VEN refinery. Unit 11A has been operating since approximately 1972 to the present. Unit 11B is used for storage of combined crude oil/slop oil which is recycled at the UNO-VEN refinery. Unit 11B has been operating since approximately 1940 to the present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: Oil stained soils were identified during a 1993 inspection of the units. Stained soils in the tank farm are periodically excavated and shipped off-site for disposal as nonhazardous waste at a landfill. The volume of materials removed is not known.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: Stained soils around Unit 11B resulted from draining of tank bottom water. No information is available regarding the cause of the stained soils observed around Unit 11A. Potential hazardous constituents released include the Skinner List.

Sampling Summary: No sampling data is available in relation to this Units 11A or 11B.

VSI Photographs of SWMU: D8 and D10. Pictures taken towards the north and northeast.

VSI Observations: Area looked clean.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 12

SWMU Name: Tank 201 and Proximate Area

Location: Refer to Figure L-1.

Designation of Type of Unit: Waste Pile

General Dimensions and Structural Description: Approximately 500 x 500 feet.

Release Controls: None

Dates of Operation and SWMU Status: This unit has operated since 1930 until the present. 50,000 cubic yards of petroleum contaminated soils were removed and transported off-site for disposal as nonhazardous waste in 1992.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
The wastes generated from this unit consist of petroleum contaminated soils which are not considered hazardous waste.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
An IEPA inspector wrote a citation after observing petroleum stained soils in the unit. Potential hazardous constituents would include Skinner List organic compounds.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: D7 Picture taken towards the southeast.

VSI Observations: No visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: Low

Air: Low

SWMU No. 13

SWMU Name: Sludge Drying Area

Location: This unit is located west of Tank 411 (Refer to Figure L-1).

Designation of Type of Unit: Waste Pile

General Dimensions and Structural Description: No information is available.

Release Controls: None

Dates of Operation and SWMU Status: This unit was formerly used for waste reduction purposes (sludge dewatering). The unit was closed in the late 1970s or early 1980s. Sludge materials were removed at the time the unit was closed.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
The wastes in this unit consisted of sludge from the Primary Light Oil Storage Tank. The quantity of sludge is not known. The wastes placed in this unit were not considered hazardous at the time of management; however, these wastes would now be considered hazardous due to benzene.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: D9 Picture taken towards the west.

VSI Observations: No visible signs of contamination

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 14 A-D

SWMU Name: Land Treatment Facility

Location: Refer to Figure L-1.

Designation of Type of Unit: Land farm

General Dimensions and Structural Description: The Land Treatment Facility (LTF) consists of four discrete Plots (referred to as Areas I through IV) used for waste disposal. The LTF is located in an area that occupies approximately 28 acres, of which about 13.5 acres were used for waste application. The remaining land includes untilled buffer zones around each Land farm plot, roads, and a non-hazardous waste storage and decant basin. The approximate area of each plot is as follows: Area I - 5.5 acres; Area II - 4.2 acres; Area III - 1.2 acres; and, Area IV - 2.6 acres.

Release Controls: None

Dates of Operation and SWMU Status: Area I opened in 1973 and Areas II, III and IV opened in 1980. The unit operated until late 1989. The LTF is currently inactive and will be undergoing closure in accordance with the Closure Plan contained in Section I of this post-closure permit application.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The general waste types disposed at the LTF included the following: Water and wastewater sludge; storm water pond dredgings; clear well sludge; cooling tower sludge; API separator sludge; and heavy oil sludge. All the wastes were non-hazardous with the exception of the API separator sludge, which accounted for less than 1% of the total volume. No API separator sludge was applied after September, 1981. The majority of the waste disposed at the LTF was storm water pond dredgings and water and wastewater sludge.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

Based on the site monitoring data which was generated during and after active site operations, no hazardous constituents have been released to the underlying groundwater. Minimal impacts (metals) were observed to soils surrounding the Land farm plots and to sediments (semivolatile organic compounds) in an adjacent intermittent stream during a recently completed site characterization study (Geraghty & Miller, 1995).

Sampling Summary: Site monitoring data has been generated during and after active operation of the Land farm including: Soil and groundwater sampling analytical data; lysimeter analytical data; and storm water analytical data. A site characterization study was recently completed to assist in evaluating alternatives for closure of the LTF (Geraghty & Miller, 1995).

VSI Photographs of SWMU: E1, E2, E8,E9, F1, F3,F4

VSI Observations: Most of the areas are covered with vegetation. Area 1 received sludge from the cleaning of the storm water basins recently and piles of soil are visible.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 15 A-B

SWMU Name: Wastewater Treatment Sludge Decant Basins

Location: This unit is located within the Land Treatment Facility as shown on Figure L-1.

Designation of Type of Unit: Surface Impoundment

General Dimensions and Structural Description: This unit is located in the southeast corner of the Land Treatment Facility.

Release Controls: None

Dates of Operation and SWMU Status: Operations began in 1974 and ceased prior to November in 1980. The unit is currently inactive. During operation, wastes were placed in the decant basins to reduce the water content prior to application in the Land farm areas. The decant basins were also used for the storage of wastes during the winter months.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The wastes placed into the decant basins consisted of: Water and wastewater sludge; storm water pond dredgings; clear well sludge; cooling tower sludge; API separator sludge; and, heavy oil sludge. All the wastes were non-hazardous with the exception of the API separator sludge, which accounted for less than 1% of the total volume. The total quantity of wastes placed in the decant basins during operations is unknown.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

Groundwater monitoring data in the LTF area has not indicated a release. No information is

available regarding the release of any hazardous waste or hazardous constituent from these units to soils.

Sampling Summary: Chemical characteristics of the wastes managed are discussed in the closure plan contained in Section I of this permit application.

VSI Photographs of SWMU: E3, E4, E5, E6, E7

VSI Observations: Water is standing in one of the basins and it is evident that waste has been stored here. Dead trees along north side of Area II. No lock on monitoring well B7 casing.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 15C

SWMU Name: Wastewater Treatment Sludge Decant Basin

Location: This unit is located within the Land Treatment Facility, as shown on Figure L-1.

Designation of Type of Unit: Surface Impoundment

General Dimensions and Structural Description: This unit is located in the southeast corner of the Land Treatment Facility. The unit is below ground earthen structure.

Release Controls: None

Dates of Operation and SWMU Status: The unit operated from approximately 1974 to 1984. Procedures for clean closure of the unit were initiated by Unocal in 1984 and approval from the IEPA for clean closure was received in 1986. This unit was reopened in 1986 for use as a non-hazardous waste sludge decanting basin and is currently operating.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The wastes placed into the decant basin prior to clean closure consisted of: Water and wastewater sludge; storm water pond dredgings; clear well sludge; cooling tower sludge; API separator sludge; and heavy oil sludge. All the wastes were non-hazardous with the exception of the API separator sludge, which accounted for less than 1% of the total volume. The total quantity of wastes placed in the decant basins during operations is unknown.

Nonhazardous wastewater treatment plant sludge is currently placed into this unit for dewatering purposes.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

There are no known releases associated with this unit.

Sampling Summary: Chemical characteristics of the wastes managed are discussed in the closure plan contained in Section I of this permit application.

VSI Photographs of SWMU: E4

VSI Observations: Contamination is visible. Pumping liquid to stream

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 16

SWMU Name: Sludge Application Area

Location: This unit is located to the east of the Land Treatment Facility (Refer to Figure L-1).

Designation of Type of Unit: Land farm

General Dimensions and Structural Description: No information is available.

Release Controls: None

Dates of Operation and SWMU Status: This unit was used for a one-time sludge application in August 1980. This unit is currently inactive.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: Approximately 10,500 cubic yards of storm water pond dredgings were applied in this unit in August 1980. At the time of placement, these wastes were considered non-hazardous.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: A release of an unknown quantity occurred in August 1980. Trace amounts of sludge potentially containing Skinner List constituents were reportedly carried off-site by storm water during a heavy rainstorm.

Sampling Summary: No sampling data was generated in relation to this unit.

VSI Photographs of SWMU: F7

VSI Observations: Area covered with vegetation.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Low

Surface water: Low

Air: Low

SWMU No. 17

SWMU Name: Intermittent Stream/Storm water Conveyance

Location: This unit is located within the Land Treatment Facility (LTF) (Refer to Figure L-1).

Designation of Type of Unit: Other

General Dimensions and Structural Description: An intermittent stream channel which collects storm water runoff from the Land farm areas, flows through the LTF from east to west, flows through an adjacent property west of the LTF, and then returns to UNO-VEN property before discharging to the UNO-VEN storm water retention ponds. Decanted liquids from

SWMUs 15A through 15C were discharged to the intermittent stream. The stream flow enters a manmade channel excavated into dolomite bedrock or of concrete construction, approximately 800 ft west of the LTF.

Release Controls: None

Dates of Operation and SWMU Status: This unit has been present from 1973 until the present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

This unit receives runoff from Land farm unit designated SWMUs 14A through 14D and decant liquids from SWMUs 15A, 15B and 15C.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

References containing chemical characteristics of wastes managed in adjacent SWMUs are cited in Summary Sheets for SWMUs 14 through SWMU 16.

Sampling Summary: Sampling data on two occasions has confirmed that storm water runoff is not characteristically hazardous. Water samples were collected from the unit by IEPA under a USEPA contract in September 1986. Additional storm water samples were collected in May 1989 by ERM-North Central to evaluate the potential for runoff to impact the intermittent stream. No VOCs or PNAs were detected above detection limits from any of the storm water samples (ERM 1989). Metals were detected at or near detection limits (ERM 1989). Characterization Report for additional information. Minimal impacts to the stream sediments relative to semivolatile organic compounds were observed in the site characterization study (Geraghty & Miller, 1995) included in Section I of this permit application. Negligible impacts were observed in the furthest downstream sample collected at the LTF property line (Geraghty & Miller, 1995).

VSI Photographs of SWMU: E10, E11, E12, F2

VSI Observations: A few visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 18

SWMU Name: Waste Staging Areas

Location: Refer to Figure L-1.

Designation of Type of Unit: Waste Pile

General Dimensions and Structural Description: This unit was used as a drying bed for storm pond sludge until 1990. Subsequently, this unit has been used as a waste staging area.

Release Controls: Gravel dike.

Dates of Operation and SWMU Status: This unit operated from the late 1980s until the present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: Storm pond sludge was placed in this unit until 1990. Since then, oil contaminated fill has been placed in this unit. The quantity of wastes placed in this unit is unknown. These wastes are not considered hazardous wastes.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: B8

VSI Observations: No visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Low

Surface water: Low

Air: Low

SWMU No. 19A-D

SWMU Name: Former Sludge Drying Areas

Location: SWMUs 19A-D are located as shown on Figure L-1.

Designation of Type of Unit: Waste Pile

General Dimensions and Structural Description: The units are aboveground diked areas except for Unit 19C which is not diked. No specific information regarding dimensions is available.

Release Controls: Gravel dike.

Dates of Operation and SWMU Status: Sludge drying operations began in the 1970s and continued until 1990. Unit 19A operated from the mid 1980s until 1990 as a sludge drying area; from 1990 to the present this unit has been used as a waste staging area. Units 19B and 19C were utilized for a 1 year period (1989 - 1990) for sludge drying areas. Unit 19D operated from the 1970s until 1990. This unit was used initially as a decant basin, then as a drying bed, and later as a holding area for mechanical dewatering sludge.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: The wastes managed were primarily sediments dredged from the Storm water Basin and were not considered a hazardous waste. The quantity of waste placed in these units is unknown.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: No information is available regarding the release of any hazardous waste or hazardous constituent in relation to these units.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: B8

VSI Observations: USEPA believed this area to be the source of contamination instead of the storm water basins. Monitoring well 8, in this area, contained highest levels of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: Low

Air: Low

SWMU No. 20

SWMU Name: Active Drum Staging Area

Location: This unit is located north of the Green Coke Storage Area.

Designation of Type of Unit: Container Storage Area

General Dimensions and Structural Description: Approximately 250 X 75 feet.

Release Controls: Back half of building concrete with drains. Curb on back side of concrete.

Dates of Operation and SWMU Status: This unit operated from the late 1980s until the present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

Empty lubrication oil drums and empty chemical drums are stored in this unit. Full drums of waste and dumpsters are also stored in this area. Some of the wastes stored in this area are considered hazardous. Hazardous wastes are stored for less than 90 days.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

Periodic spills have occurred in this unit. Contaminated soils were excavated and disposed of off-site at a landfill.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: B7

VSI Observations: Approximately 50 55 gallon drums. Half are empty.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 21

SWMU Name: Vertical Oil Storage Tanks at the Storm water Basin (SWB)

Location: Refer to Figure L-1.

Designation of Type of Unit: Wastewater Treatment Unit

General Dimensions and Structural Description: The tanks are of steel construction; no other information is available.

Release Controls: None

Dates of Operation and SWMU Status: This unit operated from the late 1980s until the early 1990s. The tanks belonged to a contractor and were utilized for the storage of oil removed from the SWB.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
The quantity of oil stored in the tanks is unknown. The oil was not considered a hazardous waste.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
No information is available regarding the release of any hazardous waste or hazardous constituents in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: B2

VSI Observations: Old contractor tanks containing sludge. No leakage evident.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 22

SWMU Name: Storm water Basin (SWB)

Location: Refer to Figure L-1.

Designation of Type of Unit: Wastewater Treatment Unit

General Dimensions and Structural Description: An on-site quarry was divided into the green coke storage area, the SWB and the treated water basin in 1969. Clay drums covered with rip rap separate the basins. The SWB has a net water capacity of 20 to 45 million gallons depending on how recently the SWB has been dredged.

Release Controls: None

Dates of Operation and SWMU Status: This unit operated from 1969 until the present, and is currently undergoing closure. A bioremediation plan was implemented from June 1991 until November 1993; however, the USEPA cleanup standards could not be met. Therefore, another plan for clean closure was prepared which proposed the removal of the sludge from the SWB. This plan was approved by the USEPA in concept in the summer of 1994, and the work plan was approved in early 1995.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The wastes managed in this unit were characteristically hazardous for benzene (i.e., D018). The quantity of wastes placed in this unit is unknown. The SWB was dredged periodically. The waste potentially contained Skinner List constituents.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: A groundwater monitoring system was installed in the vicinity of this unit between 1991 to 1994. Groundwater monitoring data is routinely provided to USEPA by UNO-VEN. A groundwater sink has been created by continual pumping of water out of the SWB and Green Coke Storage Pit. The pumped water is being routed to the wastewater treatment plant prior to discharge to the Chicago and Sanitary Ship Canal.

VSI Photographs of SWMU: A15, B1

VSI Observations: Basins are carved into dolomite bedrock.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 23A-D

SWMU Name: Water and Wastewater Treatment Plant (WWTP)

Location: Refer to Figure L-1

Designation of Type of Unit: Wastewater Treatment Unit

General Dimensions and Structural Description: The unit consists of above ground tanks, and is constructed of concrete and steel. Unit 23A is utilized for wastewater treatment; Unit 23B is used for treatment of raw water from the Chicago Sanitary and Ship Canal, Unit 23C is a corrugated plate separator; Unit 23D is a basin which holds the treated water discharged from the WWTP, and the water is then discharged to the Chicago Sanitary and Ship Canal or is utilized in the Refinery's fire suppression system.

Release Controls: None

Dates of Operation and SWMU Status: The unit has operated from 1969 until present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The sludge wastes accumulated in Unit 23C are listed hazardous wastes (F037 and F038). The quantity of wastes handled in this unit is not known. Other nonhazardous sludges are periodically generated from Units 23A and 23B.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: A14, B10, B11

VSI Observations: Only the basin seems to be an area where contamination could migrate.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 24

SWMU Name: Former API Separator

Location: The former API Separator location is shown on Figure L-1.

Designation of Type of Unit: Wastewater Treatment Unit

General Dimensions and Structural Description: Below ground concrete construction - Former API Separator. Aboveground steel unit - corrugated plate separator

Release Controls: Curbed concrete

Dates of Operation and SWMU Status: The former API separator, which was installed in 1969, was removed in 1991 or 1992. The current unit has operated since then until the present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The sludge wastes accumulated in this unit were listed hazardous wastes (K051). The quantity of wastes handled in this unit is not known.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

During the installation of the new pipeline to the WWTP oil contamination was noted and traced to the API separator. Contaminated soils potentially containing Skinner List constituents were excavated and shipped off-site for disposal at a landfill.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: A13

VSI Observations: Area appears to be clean but soil removed in this area previously.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 25A-B

SWMU Name: Heat Exchanger Bundle Cleaning Pad

Location: This unit is located in the area of the former alkylation unit as shown on to Figure L-1.

Designation of Type of Unit: Other

General Dimensions and Structural Description: High pressure cleaning operations are conducted in this area. A screen is utilized to remove solids from the wash water, which is then discharged to the process water sewer. Unit 25A is a concrete pad and Unit 25B is an asphalt pad. Both pads are curbed and in good condition.

Release Controls: Curbed concrete and asphalt with drains.

Dates of Operation and SWMU Status: The unit has operated from the mid 1980s to the present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The wastes managed in this area are heat exchanger solids and are considered hazardous wastes K050. The exact quantity of wastes handled in this area is unknown. The wastes are transported off-site for disposal or incineration, as appropriate. The wash water is routed to the refinery wastewater treatment plant.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: A9, A10, A11, A12

VSI Observations: Concrete and asphalt in good condition but staining is evident.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 25C

SWMU Name: Supplementary Heat Exchanger Bundle Cleaning Pad--Cleaning Building

Location: Refer to Figure L-1.

Designation of Type of Unit: Waste Treatment - Detoxification

General Dimensions and Structural Description: No information is available.

Release Controls: Concrete pad with drains.

Dates of Operation and SWMU Status: This unit operated from the 1970s until the present.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The wastes handled in this unit are heat exchanger solids; the quantity is not known. The wastes managed in this unit are considered hazardous since the effective date of RCRA. The wastes are listed hazardous wastes (K050). The solids are transported off-site for disposal or incineration as appropriate.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: C9

VSI Observations: Concrete in good condition but no curbs.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 26

SWMU Name: Empty Drum Collection at Maintenance Building

Location: Refer to Figure L-1.

Designation of Type of Unit: Container Storage Area

General Dimensions and Structural Description: This unit was used for drum storage only one time; the area was identified during an internal inspection by UNO-VEN and is not normally used for drum storage.

Release Controls: Asphalt

Dates of Operation and SWMU Status: The drums were stored in this area on one occasion in 1993 and were subsequently removed.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
The drums were shipped off-site for disposal as nonhazardous waste.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
The drums were in good condition with no evidence of leaks at the time of removal.

Sampling Summary: No sampling data are available for this unit.

VSI Photographs of SWMU: C10

VSI Observations: No evidence of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Low

Groundwater: Low

Surface water: Low

Air: Low

SWMU No. 27

SWMU Name: Laboratory Container Storage Area

Location: Refer to Figure L-1.

Designation of Type of Unit: Container Storage Area

General Dimensions and Structural Description: The unit is a concrete loading dock. No dimensions are available.

Release Controls: Asphalt

Dates of Operation and SWMU Status: Waste management practices related to handling of product samples began in the late 1980s and is continuing.

Sample baskets containing quality control samples are unloaded onto the concrete dock. Oil staining of the concrete has occurred due to minor drips and leaks from sample containers. A 55-gallon drum containing absorbent material used to cleanup a nonreportable benzene spill was manifested from the laboratory in 1992.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

Sampling Summary: No sampling data are available for this unit.

VSI Photographs of SWMU: C11

VSI Observations: No visible evidence of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Low

Groundwater: Low

Surface water: Low

Air: Low

SWMU No. 28

SWMU Name: Filter press and Sludge Dewatering at Alky Unit

Location: Refer to Figure L-1.

Designation of Type of Unit: Wastewater Treatment Unit

General Dimensions and Structural Description: This unit is used periodically by a contractor for equipment set-up. No dimensions are available.

Release Controls: Concrete pit with grating over it.

Dates of Operation and SWMU Status: This unit operated from 1985 to the present. A portable treatment system is operated in this area approximately 2 to 6 months per year.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: The treatment system generates calcium fluoride sludge (CaF_2) which is nonhazardous. The generated liquids which contain some oils are discharged to a process sewer.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: No information is available regarding the release of any hazardous waste or hazardous constituent in relation to this unit.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: A8

VSI Observations: No visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 29

SWMU Name: Drum Storage Area at Building South of Alky Unit; Braun Building

Location: Refer to Figure L-1.

Designation of Type of Unit: Container Storage Area

General Dimensions and Structural Description: This unit was used for drum storage only one time.

Release Controls: None

Dates of Operation and SWMU Status: The drums were stored in this area on one occasion in 1993 and were subsequently removed.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: Nonhazardous wastes were stored in the drums.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: The drums were in good condition with no sign of leaks at the time of removal.

Sampling Summary: No sampling data is available in relation to this unit.

VSI Photographs of SWMU: A5, A6

VSI Observations: Currently contractor storage area.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Low

Groundwater: Low

Surface water: Low

Air: Low

SWMU No. 30

SWMU Name: Former PLO UST at Fuels Loading Rack Area

Location: This unit is located in the north end of the UNO-VEN Refinery at the southeast corner of the intersection of New Avenue and 127th Street (Refer to Figure L-1). A site plan for the Fuels Loading Rack Area is included in Appendix L-1.

Designation of Type of Unit: Underground Storage Tank (UST)

General Dimensions and Structural Description: The unit is located in an area of three active fuel loading racks where fuels are loaded into awaiting over-the-road tanker trucks. The surface of the unit is mainly concrete covered. The Former Primary Light Oil (PLO) UST covers an area of approximately 100 sq. ft.

Release Controls: None

Dates of Operation and SWMU Status: The two USTs were closed in 1991.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Two former 881-gallon PLO USTs were removed from this unit in late 1991.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Soil contamination was discovered upon the removal of the USTs in this unit. Soil sampling indicated the presence of hazardous constituents (petroleum hydrocarbon compounds) within the subsurface soils (Heritage Remediation/Engineering, Inc., November 1991). A supplemental site investigation was conducted (Maude Environmental, Inc., July 1993) during which soil borings and shallow and bedrock groundwater monitoring wells were completed, and soil and groundwater samples were collected. The soil and groundwater analytical results indicated that the subsurface soils and underlying groundwater has been impacted by petroleum hydrocarbon compounds in exceedence of the IEPA soil and groundwater cleanup objectives.

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: No visible contamination evident.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 31 A-E

SWMU Name: Former USTs Located at Former Service Station and Active Solvent Loading Rack Area

Location: These units are located near the northern portion of the UNO-VEN Refinery along New Avenue (Refer to Figure L-1). A site plan for the Solvent Loading Rack Area and the

Former Service Station Area is included in Appendix L-1.

Designation of Type of Unit: Underground Storage Tank (UST)

General Dimensions and Structural Description: SWMU 31A is located within the Solvent Loading Rack Area which has four active solvent loading racks. SWMU 31A covers an area of approximately 150 square feet (sq. ft.). The Former Service Station Area is located north of the Solvent Loading Rack Area across New Avenue. Units 31B through 31E are in the Former Service Station Area. SWMUs 31B through 31E cover a cumulative area of approximately 2,000 sq. ft.

Release Controls: None

Dates of Operation and SWMU Status: The PLO UST located at the Solvent Loading Rack Area was closed in 1991. The Solvent Loading Rack Area is an active solvent loading area where solvents are loaded into awaiting over-the-road tanker trucks. USTs at the Former Service Station were removed in 1991. The Former Service Station is currently a vacant parcel property.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available: Eight USTs were removed from this unit in late 1991 including: One 1,000-gallon Primary Light Oil (PLO) UST (SWMU 31A); two 1,000-gallon gasoline USTs (SWMU 31B); one 500-gallon hydraulic oil UST (SWMU 31C); two 6,000-gallon leaded gasoline USTs (SWMU 31D); and, two 3,000-gallon diesel USTs (SWMU 31E).

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents: Soil contamination was discovered upon the removal of the USTs in both the Solvent Loading Rack Area and the Former Service Station Area. Soil sampling indicated the presence of hazardous constituents (petroleum hydrocarbon compounds) within the subsurface soils (Heritage Remediation/Engineering, Inc., November 1992). The apparent area of highest contamination was determined to be associated with the Former Service Station Area. The soil contamination within the Solvent Loading Rack Area was limited to the immediate area surrounding the former USTs. A supplemental site investigation was conducted (Maude Environmental, Inc., July 1993) at the Solvent Loading Rack Area during which soil borings and shallow and bedrock groundwater monitoring wells were completed, and soil and groundwater samples were collected. The soil and groundwater analytical results related to the Solvent Loading Rack Area indicated that the subsurface soils and underlying shallow groundwater has been impacted by petroleum hydrocarbon compounds and total lead in exceedence of the IEPA soil and groundwater cleanup objectives. However, none of the groundwater samples collected from the bedrock monitoring wells exceeded the IEPA groundwater cleanup objectives.

The soil and groundwater analytical results related to the Former Service Station Area indicated that the subsurface soils and underlying shallow and deep groundwater (benzene specifically) have been impacted by petroleum hydrocarbon compounds in exceedence of the IEPA soil and groundwater cleanup objectives.

Sampling Summary: Unknown

VSI Photographs of SWMU: F8 thru F13

VSI Observations: No visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 32

SWMU Name: Former Process Blending UST at the Process Blend Center

Location: This unit is located along New Avenue to the west, and south of the North Plant area (Refer to Figure L-1). A site plan (Maude Environmental, Inc., July 1993) is included in Appendix L-1.

Designation of Type of Unit: Underground Storage Tank (UST)

General Dimensions and Structural Description: The Former Process Blending UST Area is located at the Process Blend Center and covers an area of approximately 150 square feet. The former UST was overlain by concrete.

Release Controls: None

Dates of Operation and SWMU Status: The unit has been closed.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

One 2,000 gallon UST was removed from this unit in August 1992.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

Soil and groundwater contamination was discovered upon the removal of the UST in this unit. Soil and groundwater analytical data indicated the presence of hazardous constituents (petroleum hydrocarbon compounds) within the subsurface soils and groundwater (Heritage Remediation/Engineering, Inc., September 1992). A supplemental site investigation was conducted (Maude Environmental, Inc., July 1993) during which soil borings and groundwater monitoring wells were completed, and soil and groundwater samples were collected. The soil and groundwater analytical results indicated that the subsurface soils and underlying groundwater has been impacted by petroleum hydrocarbon compounds (benzene specifically) and total lead (groundwater only) in exceedence of the IEPA soil and groundwater cleanup objectives.

Sampling Summary: Unknown

VSI Photographs of SWMU: D4

VSI Observations: No visible signs of contamination.

Unit Identified as SWMU by Facility: Yes

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 33

SWMU Name: Groundwater Management Zone

Location: This unit encompasses the storm water and process water basins.

Designation of Type of Unit: Groundwater monitoring system

General Dimensions and Structural Description: The monitoring system consist of several wells which surround an area of the facility approximately 2400 X 2400 feet.

Release Controls: None

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Storm water and Process water after it passes through API separator and holding tanks 485 and 486.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
None

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: No visible signs of contamination.

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 34

SWMU Name: French Drain System

Location: This unit is located north of the 500 series tanks in the north plant.

Designation of Type of Unit: Other

General Dimensions and Structural Description: The drain lies underground. Little information was available during the VSI.

Release Controls: None

Dates of Operation and SWMU Status: Unknown.

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Unknown.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Volatiles have been detected at this area.

Sampling Summary: Unknown

VSI Photographs of SWMU: D11

VSI Observations: Walter Neid from the USEPA has been investigating this area. No visible signs of contamination were present at the time of the VSI.

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: High

Groundwater: High

Surface water: High

Air: Low

SWMU No. 35

SWMU Name: Red Die Spill Area

Location: This unit is located in the process blend area in the north plant. It is close to SWMU 30.

Designation of Type of Unit: Other

General Dimensions and Structural Description: There is a 2 X 2 foot drain which has stains surrounding it. Area consist of gravel over bedrock.

Release Controls: None

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

The red die is an additive to diesel fuel.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

Current releases of the fuel additive to the ground are evident.

Sampling Summary: Unknown

VSI Photographs of SWMU: D5, D6

VSI Observations: Red die stains are present surrounding the drain. White rock had been placed around the area.

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: High

Groundwater: High

Surface water: Low

Air: Low

SWMU No. 36

SWMU Name: Former Maintenance Underground Storage Tank

Location: This unit is located north of the maintenance building near salvage yard.

Designation of Type of Unit: UST

General Dimensions and Structural Description: One 5000 gallon diesel tank and one 5000 gallon gasoline tank.

Release Controls: None

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

Gasoline and diesel fuel.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

This area has a the following incident number: #903239.

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: None.

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 37

SWMU Name: Former UST located near WWTP Outfall

Location: This unit is located Along the Chicago Sanitary and Ship Canal and west of the WWTP.

Designation of Type of Unit: Storage Tank

General Dimensions and Structural Description: One 1000 gallon diesel tank.

Release Controls: None

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:

Diesel fuel.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:

This area has the following incident number: #903239.

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: None.

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Medium

Air: Low

SWMU No. 38

SWMU Name: Process Sewer System

Location: Throughout plant.

Designation of Type of Unit: Other

General Dimensions and Structural Description: Unknown.

Release Controls: None

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Unknown

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Unknown.

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: None

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Medium

Air: Low

SWMU No. 39

SWMU Name: Storm water Sewer System

Location: Throughout plant.

Designation of Type of Unit: Other

General Dimensions and Structural Description: Unknown.

Release Controls: None

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Unknown

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Unknown.

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: None

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Medium

Air: Low

SWMU No. 40

SWMU Name: Open Flow Ditches

Location: Throughout plant.

Designation of Type of Unit: Other

General Dimensions and Structural Description: Unknown.

Release Controls: None

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Unknown

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Unknown.

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: None

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Medium

Air: Low

SWMU No. 41

SWMU Name: East Tank Farm

Location: On the east side of the bluff which is approximately 125 feet higher than west of the bluff.

Designation of Type of Unit: Storage Tanks.

General Dimensions and Structural Description: Unknown.

Release Controls: Gravel dikes.

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Various petroleum products.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Unknown

Sampling Summary: Unknown

VSI Photographs of SWMU: F15, F16, F17, F18

VSI Observations: Generally look to be in good condition.

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 42

SWMU Name: West Tank Farm

Location: On the west side of the bluff which is approximately 125 feet lower than east of the bluff.

Designation of Type of Unit: Storage Tanks.

General Dimensions and Structural Description: Unknown.

Release Controls: Gravel dikes.

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Various petroleum products.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Unknown

Sampling Summary: Unknown

VSI Photographs of SWMU: F15, F16, F17, F18

VSI Observations: Generally look to be in good condition.

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 43

SWMU Name: Product Pipelines

Location: Throughout Plant.

Designation of Type of Unit: Other.

General Dimensions and Structural Description: Unknown.

Release Controls: None.

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Various petroleum products.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Unknown

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: None

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Medium

Groundwater: Medium

Surface water: Low

Air: Low

SWMU No. 44A-D

SWMU Name: Cooling TowersEast Tank Farm

Location: Two in south plant and two in north plant.

Designation of Type of Unit: Other

General Dimensions and Structural Description: Unknown

Release Controls: None

Dates of Operation and SWMU Status: Unknown

Specification of All Wastes That Have Been Managed in the Unit to the Extent Available:
Zinc Chromate was used in the cooling towers up until approximately 1995.

Information Pertinent to Any Releases of Hazardous Wastes or Hazardous Constituents:
Unknown

Sampling Summary: Unknown

VSI Photographs of SWMU: None

VSI Observations: No evidence of contamination.

Unit Identified as SWMU by Facility: No

Release Potential:

Soil: Low

Groundwater: Low

Surface water: Low

Air: Low

IV. Discussion of Efforts Associated with the Development of the RFA

1. Regulatory History

The Uno-Ven Company is seeking a RCRA Part B Post-Closure Permit for the Land Treatment Facility. They currently operate under an NPDES permit and 34 various air permits. The IEPA has received several citizen complaints about Uno-Ven/Unocal in the past. On July 31, 1980 the field operations section received a complaint about the dumping of sludge material by Unocal onto its own property. An inspection was conducted on August 1, 1980 and the application of oily sludge to land was observed. It was unknown whether this sludge was hazardous or not. Union Oil of California (Unocal) submitted a Part A application on November 1980. Since then the facility has been operating under interim status. The latest Part B permit application is dated May 12, 1995 and was received by the Agency on May 15, 1995.

2. Visual Site Inspection (VSI)

A VSI was conducted at the Uno-Ven Chicago Refinery facility in Lemont, Illinois, on September 4 and 5, 1996. Rob Watson, Terri Blake-Myers, Ron Rybolt, and Clayton Bloome were in attendance for the Agency. Claude Harmon, Kevin Moss, Joel Garretson, and Tom Hall represented the refinery. It was decided that due to the size of the facility and number of solid waste management units that we would split into two groups to conduct the VSI. Rob Watson, Terri Blake-Myers, Joel Garretson, and Tom Hall inspected the Land Treatment Area, Groundwater Management Zone, and Tank Farms. Claude Harmon, Kevin Moss, Ron Rybolt and Clayton Bloome inspected the South Plant, North Plant, and Canal Dock areas. Comments on Solid Waste Management Units were recorded and the results are contained in Chapter 3, Characteristics of Solid Waste Management Units. Photographs of the SWMUs taken during the VSI are included in Attachment 10.

V. References

Uno-Ven Chicago Refinery, RCRA Part B Permit Application

Illinois EPA Bureau of Land Pollution Control Files

Illinois State Geological Survey for well logs surrounding the facility.

Table 1

Solid Waste Management Units (SWMUs)

Former Empty Drum Storage Area, SWMU No. 1

Former Process Wastewater Line ("Big Inch"), SWMU No. 2 A-E

Former North Plant API Separator and Current Above-Ground Corrugated-Plate Separator, SWMU No. 3

Hot Oil Line, Seneca Petroleum Storage Tank, SWMU No. 4

Former Dump Area for Lime Sludge; Seneca Tank Location, SWMU No. 5

Drum Storage Area, SWMU No. 6

Interceptor Trench; Canal Dock, SWMU No. 7

Demolition Debris, SWMU No. 8

Former Process Area, SWMU No. 9

North Plant Heat Exchanger Bundle Cleaning Pad, SWMU No. 10

Recycle Tanks, 11A-Mobil Interface Tank 436; 11B-301 Tank, SWMU No. 11 A-B

Tank 201 and Proximate Area, SWMU No. 12

Sludge Drying Area, SWMU No. 13

Land Treatment Facility, SWMU No. 14A-D

Wastewater Treatment Sludge Decant Basins, SWMU No. 15A-B

Wastewater Treatment Sludge Decant Basin, SWMU No. 15C

Sludge Application Area, SWMU No. 16

Intermittent Stream/Storm water Conveyance, SWMU No. 17

Waste Staging Areas, SWMU No. 18

Former Sludge Drying Areas, SWMU No. 19 A-D

Active Drum Staging Area, SWMU No. 20

Table 1 (continued)

Vertical Oil Storage Tanks at the Storm water Basin (SWB), SWMU No. 21

Storm water Basin, SWMU No. 22

Water and Wastewater Treatment Plant (WWTP), SWMU No. 23

Former API Separator, SWMU No. 24

Heat Exchanger Bundle Cleaning Pad, SWMU No. 25A-B

Supplementary Heat Exchanger Bundle Cleaning Pas-Cleaning Building, SWMU No. 25C

Empty Drum Collection at Maintenance Building, SWMU No. 26

Laboratory Container Storage Area, SWMU No. 27

Filter press and Sludge Dewatering at Alky Unit, SWMU No. 28

Drum Storage Area at Building South of Alky Unit; Braun Building, SWMU No. 29

Former PLO UST at Fuels Loading Rack Area, SWMU No. 30

Former USTs Located at Former Service Station and Active Solvent Loading Rack Area, SWMU No. 31A-E

Former Process Blending UST at the Process Blend Center, SWMU No. 32

Groundwater Management Zone, SWMU No. 33

French Drain System(north of 500 series tanks), SWMU No. 34

Red Die Spill Area (Near tank 206), SWMU No. 35

Former USTs (located near maintenance building), SWMU No. 36

Former USTs (located near WWTP outfall), SWMU No. 37

Process Sewer System, SWMU No. 38

Storm Sewer System, SWMU No. 39

Open Flow Ditches, SWMU No. 40

East Tank Farm, SWMU No. 41

Table 1 (continued)

West Tank Farm, SWMU No. 42

Product Pipelines, SWMU No. 43

Table 2**Summary of Suggested Further Actions**

<u>Unit No</u>	<u>Unit Name</u>	<u>Suggested Further Actions</u>
SWMU 1	Former Empty Drum Storage Area,	Soil Sampling
SWMU 2A-E	Former Process Wastewater Line ("Big Inch")	Soil Sampling
SWMU 3	Former North Plant API Separator and Current Above-Ground Corrugated-Plate Separator	Soil Sampling
SWMU 4	Hot Oil Line, Seneca Petroleum Storage Tank	Soil Sampling
SWMU 5	Former Dump Area for Lime Sludge; Seneca Tank Location	Soil Sampling
SWMU 6	Drum Storage Area	Soil Sampling
SWMU 7	Interceptor Trench; Canal Dock	Soil Sampling
SWMU 8	Demolition Debris	Soil Sampling
SWMU 9	Former Process Area	Soil Sampling
SWMU 10	North Plant Heat Exchanger Bundle Cleaning Pad	Soil Sampling
SWMU 11A-B	Recycle Tanks, 11A-Mobil Interface Tank 436; 11B-301 Tank	Soil Sampling
SWMU 12	Tank 201 and Proximate Area	Soil Sampling
SWMU 13	Sludge Drying Area	Soil Sampling
SWMU 14A-D	Land Treatment Facility	Soil Sampling
SWMU 15A-B	Wastewater Treatment Sludge Decant Basins	Soil Sampling

SWMU 15C	Wastewater Treatment Sludge Decant Basin	Soil Sampling
SWMU 16	Sludge Application Area	Soil Sampling
SWMU 17	Intermittent Stream/Storm water Conveyance	Soil Sampling
SWMU 18	Waste Staging Areas	Soil Sampling
SWMU 19A-D	Former Sludge Drying Areas	Soil Sampling
SWMU 20	Active Drum Staging Area	Soil Sampling
SWMU 21	Vertical Oil Storage Tanks at the Storm water Basin (SWB)	Soil Sampling
SWMU 22	Storm water Basin	Soil Sampling
SWMU 23	Water and Wastewater Treatment Plant (WWTP)	Soil Sampling
SWMU 24	Former API Separator	Soil Sampling
SWMU 25A-B	Heat Exchanger Bundle Cleaning Pad	Soil Sampling
SWMU 25C	Supplementary Heat Exchanger Bundle Cleaning Pas-Cleaning Building	Soil Sampling
SWMU 26	Empty Drum Collection at Maintenance Building	Soil Sampling
SWMU 27	Laboratory Container Storage Area	Soil Sampling
SWMU 28	Filter press and Sludge Dewatering at Alky Unit	Soil Sampling
SWMU 29	Drum Storage Area at Building South of Alky Unit; Braun Building	Soil Sampling
SWMU 30	Former PLO UST at Fuels Loading Rack Area	Soil Sampling

SWMU 31A-E	Former USTs Located at Former Service Station and Active Solvent Loading Rack Area	Soil Sampling
SWMU 32	Former Process Blending UST at the Process Blend Center	Soil Sampling
SWMU 33	Groundwater Management Zone	Soil Sampling
SWMU 34	French Drain System(north of 500 series tanks)	Soil Sampling
SWMU 35	Red Die Spill Area (Near tank 206)	Soil Sampling
SWMU 36	Former USTs (located near maintenance building)	Soil Sampling
SWMU 37	Former USTs (located near WWTP outfall)	Soil Sampling
SWMU 38	Process Sewer System	Soil Sampling
SWMU 39	Storm Sewer System	Soil Sampling
SWMU 40	Open Flow Ditches	Soil Sampling
SWMU 41	East Tank Farm	Soil Sampling
SWMU 42	West Tank Farm	Soil Sampling
SWMU 43	Product Pipelines	Soil Sampling

Table 3**Summary of Photographs**

A summary of each photograph taken during the VSI is described below. The roll numbers and photograph numbers of the film are given. The photographs are shown at the end of this report.

<u>Roll No.</u>	<u>Photo No.</u>	<u>Photo Description</u>
A	1	SWMU 1; Drum Storage Area
A	2	SWMU 1; Drum Storage Area
A	3	SWMU 1; Drum Storage Area
A	4	SWMU 1; Drum Storage Area
A	5	SWMU 29; Former Drum Storage Area
A	6	SWMU 29; Former Drum Storage Area
A	7	SWMU 28; Filter Press and Sludge Dewatering Alky Unit
A	8	SWMU 28; Filter Press and Sludge Dewatering Alky Unit
A	9	SWMU 25A; Heat Exchanger Bundle Cleaning Pad
A	10	SWMU 25A; Heat Exchanger Bundle Cleaning Pad
A	11	SWMU 25B; Heat Exchanger Bundle Cleaning Pad
A	12	SWMU 25B; Heat Exchanger Bundle Cleaning Pad
A	13	SWMU 24; Former API Separator
A	14	SWMU 23; Treated Water Basin
A	15	SWMU 22; East Basin
B	1	SWMU 22; Northwest Basin
B	2	SWMU 21; Vertical Oil Storage Tanks
B	3	Sludge Drying Area

B	4	Coke Pit
B	5	SWMU 19D; Former Sludge Drying Area
B	6	Open Flow Ditch
B	7	SWMU 20; Active Drum Staging Area
B	8	SWMUs 18 & 19; Waste Staging Area and Former Sludge Drying Area
B	9	South Plant Cooling Tower
B	10	SWMU 23; Water & Wastewater Treatment Plant
B	11	SWMU 23; Water & Wastewater Treatment Plant
B	12	Storm Water Basins and North Plant
C	1	Sulfur Loading Rack
C	2	WWTP Outfall
C	3	Barge Loading Area
C	4	SWMU 5; Former Dump Area for Lime Sludge; Seneca Tank Location
C	5	SWMU 4; Hot Oil Line, Seneca Petroleum Storage Tank
C	6	SWMU 8; Demolition Debris
C	7	SWMU 6; Former Drum Storage Area
C	8	SWMU 7; Interceptor Trench, Canal Dock
C	9	SWMU 25C; Heat Exchanger Cleaning Pad
C	10	SWMU 26; Empty Drum Collection at Maintenance Building
C	11	SWMU 27; Laboratory Container Storage Area
C	12	SWMU 2E; Former Process Wastewater Line Sump
D	1	North Plant Cooling Tower

D	2	SWMU 10; North Plant Heat Exchanger Bundle Cleaning Pad
D	3	SWMU 9; Former Process Area
D	4	SWMU 32; Former Process Blending UST at the Process Blend Center
D	5	Red Die Spill Area Near Process Blend Center
D	6	Red Die Spill Area Near Process Blend Center
D	7	SWMU 12; Tank 201 and Proximate Area
D	8	SWMU 11A; Recycle Tank 436
D	9	SWMU 13; Sludge Drying Area
D	10	SWMU 11B; Recycle Tank 301
D	11	French Drain North of 500 Series Tanks
D	12	South Plant Refinery
E	1	SWMU 14A; Land Treatment Facility
E	2	SWMU 14A; Land Treatment Facility Area 1
E	3	SWMU 15; Wastewater Treatment Sludge Decant Basins
E	4	SWMU 15; Wastewater Treatment Sludge Decant Basins
E	5	SWMU 15; Wastewater Treatment Sludge Decant Basins
E	6	SWMU 15; Wastewater Treatment Sludge Decant Basins
E	7	SWMU 15; Wastewater Treatment Sludge Decant Basins
E	8	SWMU 14C; Land Treatment Facility Area 2
E	9	SWMU 14; Land Treatment Facility Area

E	10	SWMU 17; Intermittent Stream/Storm water Conveyance
E	11	SWMU 17; Intermittent Stream/Storm water Conveyance
E	12	SWMU 17; Intermittent Stream/Storm water Conveyance
F	1	SWMU 14B; Land Treatment Facility Area 3
F	2	SWMU 17; Intermittent Stream/Storm water Conveyance
F	3	SWMU 14D; Land Treatment Facility Area 4
F	4	SWMU 14D; Land Treatment Facility Area 4
F	5	East Tank Farm
F	6	East Tank Farm
F	7	SWMU 16; Sludge Application Area
F	8	SWMU 31B-E; Former USTs
F	9	SWMU 31B-E; Former USTs
F	10	SWMU 31B-E; Former USTs
F	11	SWMU 31A; Solvent Loading Rack
F	12	SWMU 31A; Solvent Loading Rack
F	13	SWMU 31A; Solvent Loading Rack
F	14	Process Piping
F	15	East Tank Farm
F	16	East Tank Farm
F	17	East Tank Farm and associated piping
F	18	East Tank Farm
F	19	West Tank Farm

F 20

West Tank Farm

F 21

West Tank Farm

F 22

West Tank Farm

Attachment 1
Facility Map L-1

SOLID WASTE MANAGEMENT UNIT LOCATIONS

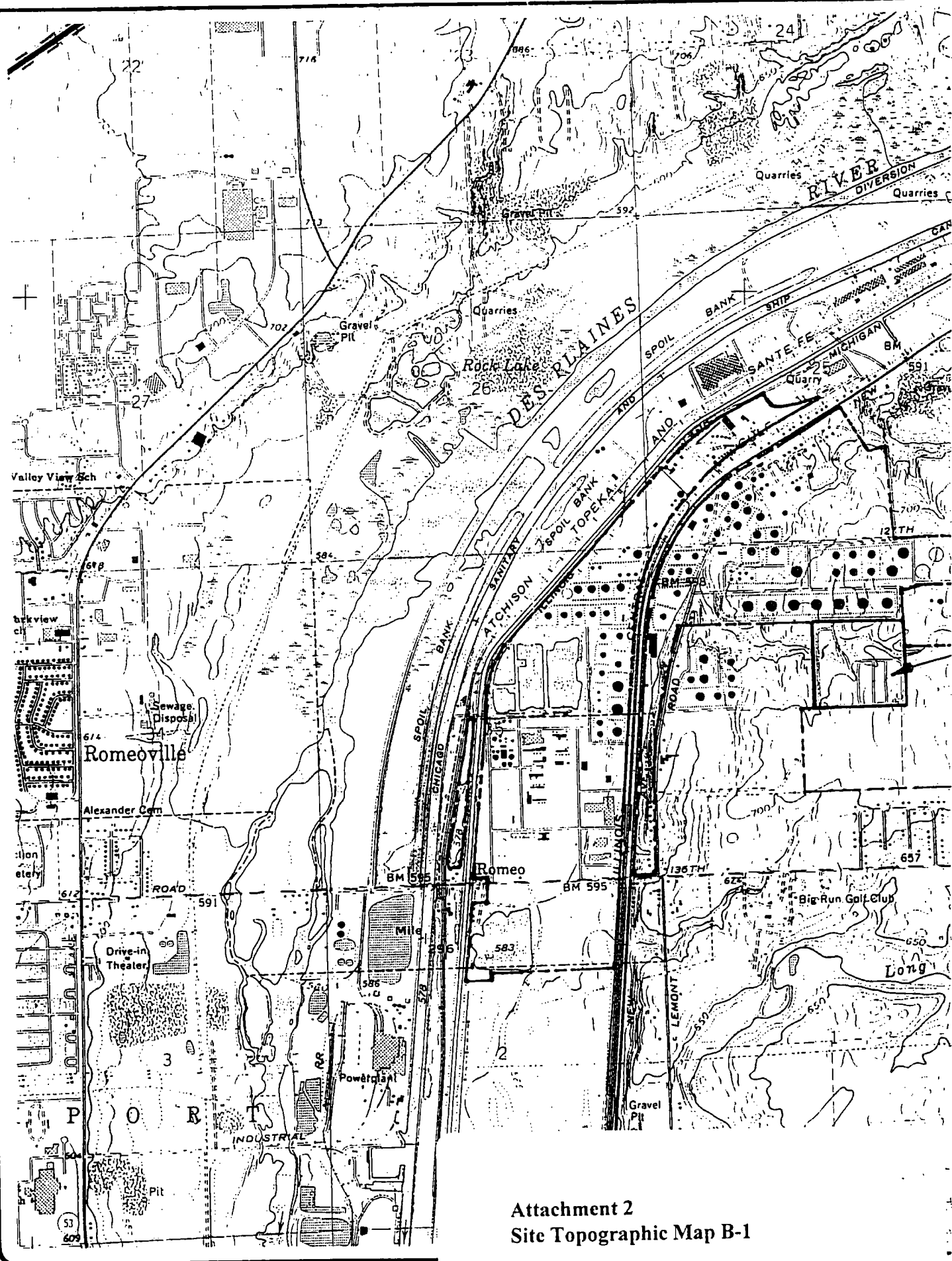
UNO-VEN REFINERY
LEMONT, ILLINOIS

FIGURE

L-1

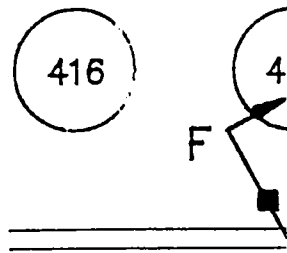
Attachment 1
Facility Map L-1

DWG DATE: 9/13/93 | PRJCT NO.: C0284.002 | FILE NO.: NON-CAD | DRAWING: C128-402-B1-1 | CHECKED: J TANAKA | APPROVED: J TANAKA | DRAFTER: S GIDNER 1-1



Attachment 2
Site Topographic Map B-1

DWG DATE: 4/24/95 | PRJCT NO: C0395.001 | FILE NO: URE-4.DWG | DRAWING: C039501-E-4 | CHECKED: L CRAVEN | APPROVED: G CIPRIANO | DRAFTER: S GOZNER 1-300



LEGEND

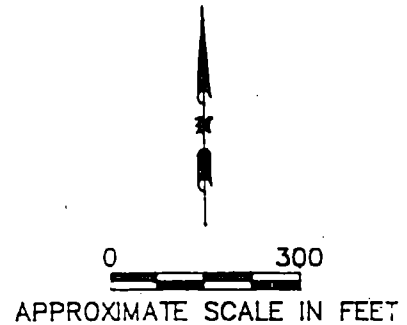
- DEEP MONITORING WELL/
NUMBER
- ◻ SHALLOW MONITORING
WELL/NUMBER
- PIEZOMETER/NUMBER
- ⊙ FORMER MONITORING WELL/
NUMBER
- ◻ LIMITS OF LANDFARM PLOT
- A' CROSS-SECTION LOCATION

MW—

UA—

B—

SW—



APPROXIMATE SCALE IN FEET

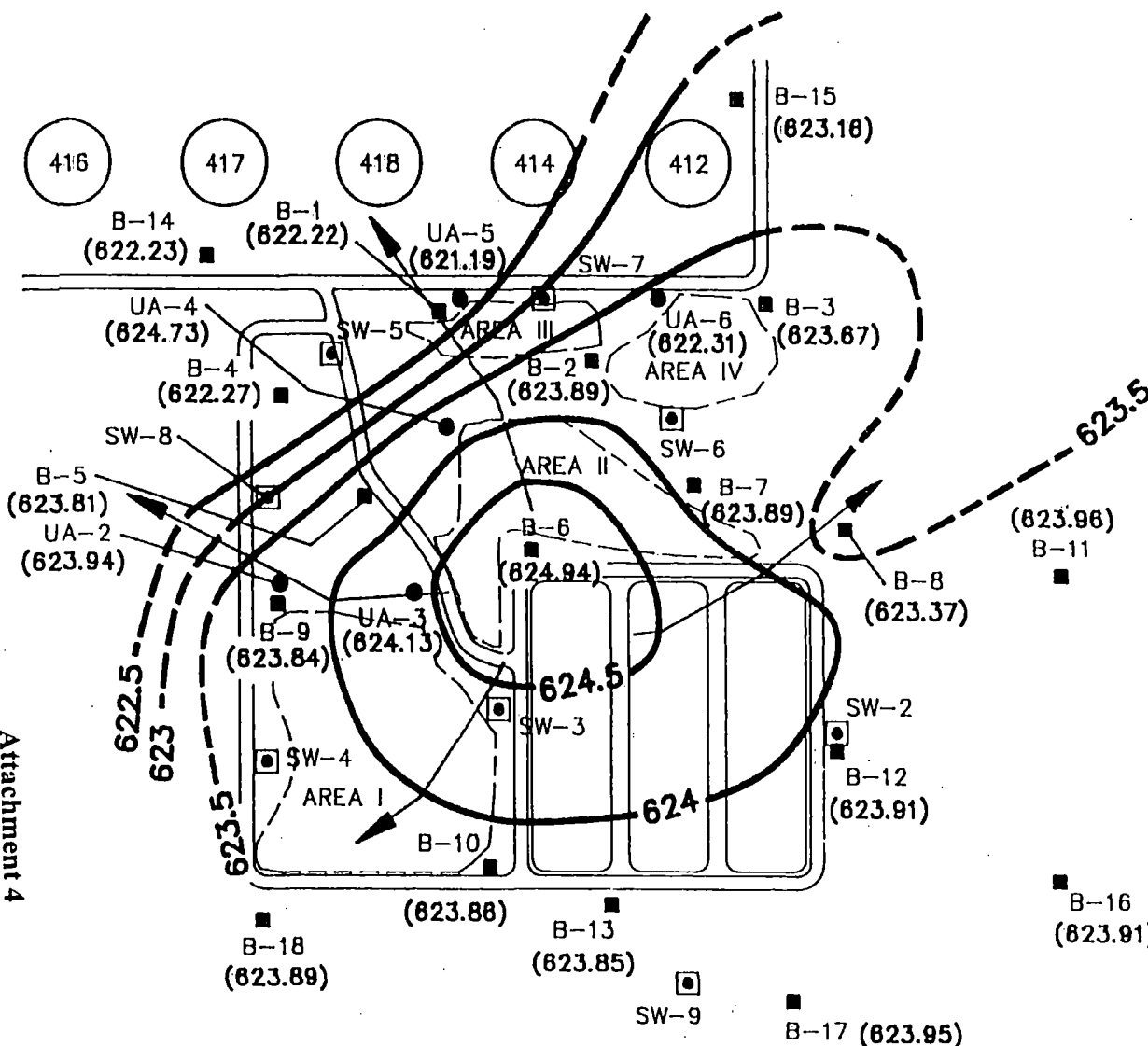
SOURCE: ENSR FIGURE 2-1,
FEBRUARY 8, 1989.

CROSS-SECTION LOCATION SOURCE: ERT,
PLATE 3, APRIL 28, 1988.

Attachment 3
Land Treatment Area
Geologic Cross-Sections

E-47

Attachment 4
Land Treatment Facility
Groundwater Contour Map



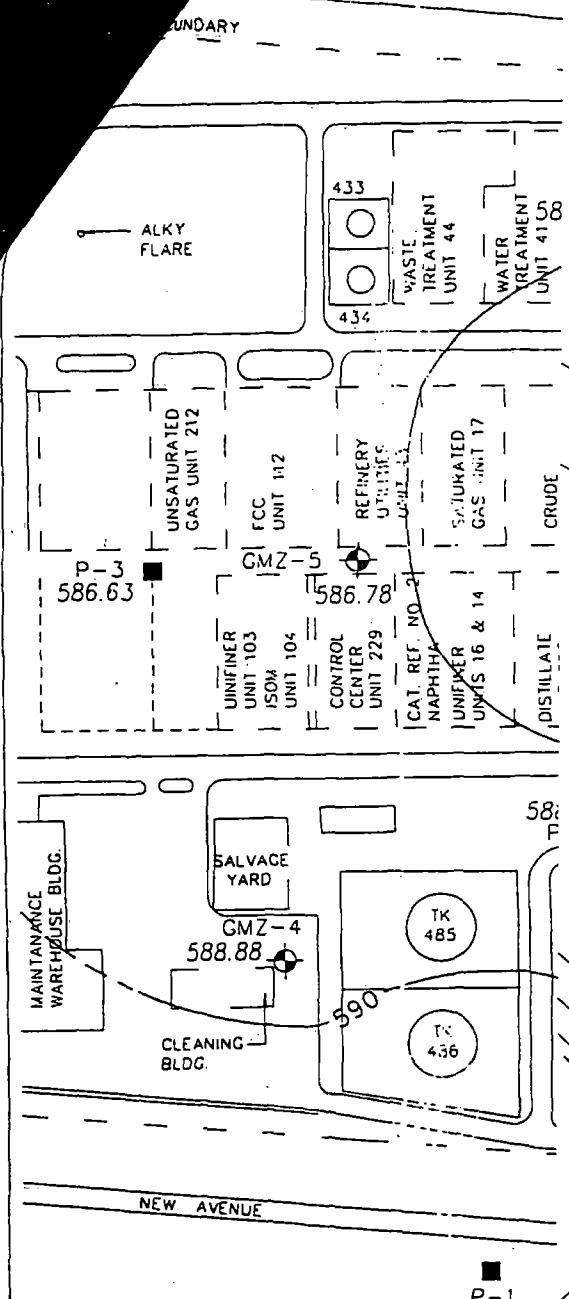
GERAGHTY & MILLER, INC.
Environmental Services

POTENTIOMETRIC SURFACE MAP - BEDROCK PIEZOMETERS

MAY 24, 1994
UNO-VEN REFINERY
LEMONT, ILLINOIS

FIGURE
E-7

DATE: 10-20-95



LEGEND

- RCRA ALTERNATE GROUNDWATER MONITORING WELL (SWB - STORM WATER BASIN)
- ▲ STAFF GAGE
- PIEZOMETER
- ⊙ PIEZOMETER CLUSTER (P)
- ⊕ ABANDONED PIEZOMETER
- ⊗ GROUNDWATER MANAGEMENT ZONE MONITORING WELL
- ⊕ GROUNDWATER MANAGEMENT ZONE PIEZOMETER

— 584 — WATER ELEVATION CONTOURS IN FT. NGVD (DASHED WERE INFERRED)
 NR = NOT READABLE DUE TO THE WATER ELEVATION OR OTHER SITE ACTIVITIES

Figure 1

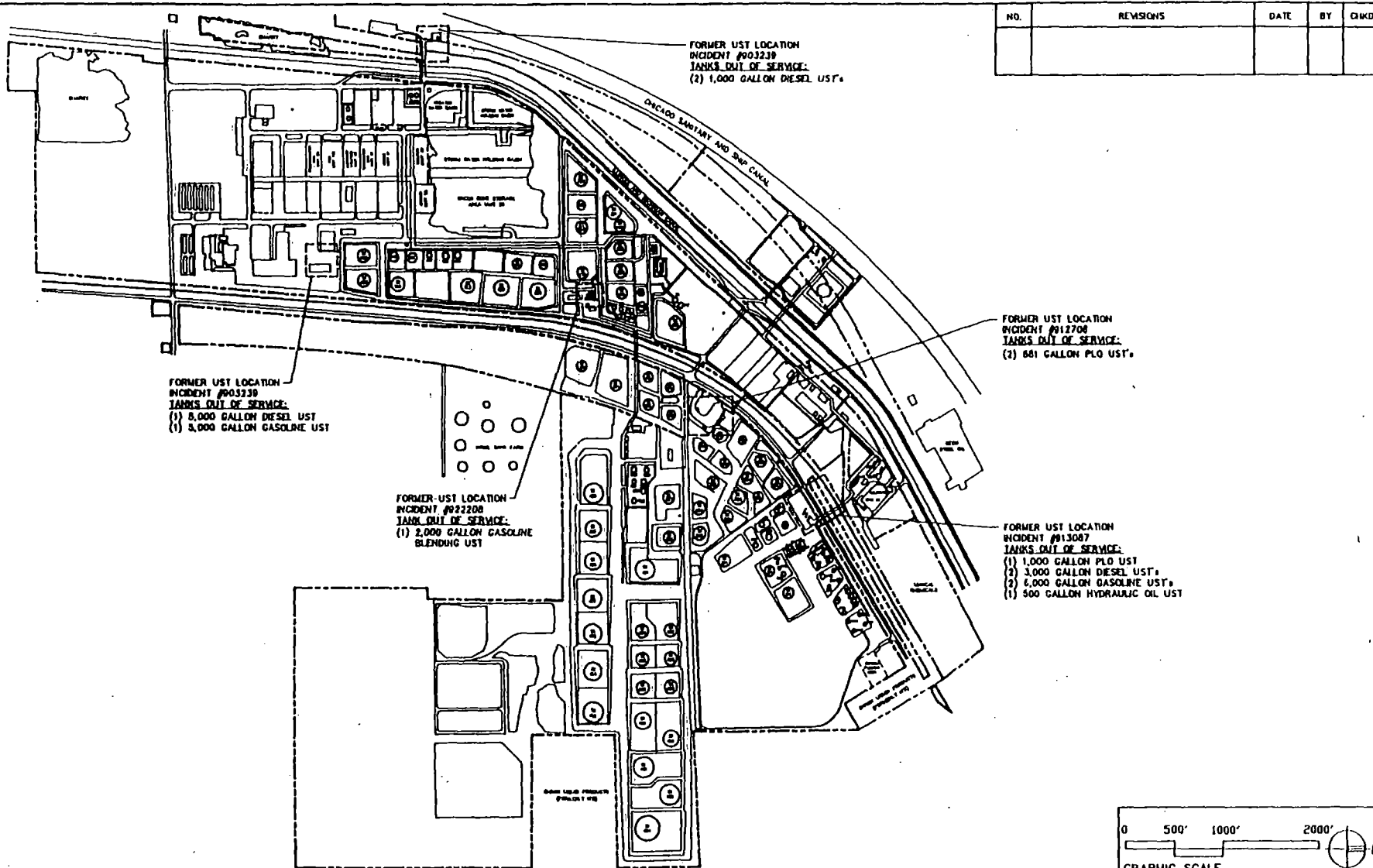
APT

FOURTH QUARTER
 GROUNDWATER ELEVATIONS
 RECORDED 10-20-1995

REFERENCE: ENSR CONSULTING AND
 DRAWING No. 6941057E
 A HORIZONTAL COORDINATE
 ELEVATION SURVEY WAS
 BEING CONSULTANTS,
 SEPTEMBER 1, 1995 AND
 INTO THIS DRAWING

(OFFICE)

(USE ONLY)	FIPS	TWN	RNG	SC	FL	OWNER	DRILLER	DATE	PERMIT	DEPTH	REL.	DB
158008	197	36N	10E	01		VETERANS ADMINISTRATION LOT 130	WILL DUPAGE CO	08/27/1985	1119200	300	RG	00
158009	197	36N	10E	01		MURPHY N	BREITZLE	09/06/1940	1	132	OG	00
210110	197	36N	10E	01	6F	FRANK J LYNCH		03/00/1951		60	OG	00
① 210111	197	36N	10E	01	7B	SCOTT DUDS III	FYKES	07/07/1986	024620	150	RG	00
158002	197	36N	10E	01	8E	LEACH J	LOCKPORT	06/29/1973	1029030	100	RG	00
① 158006	197	36N	10E	01	08	PARRISH CONST	ENTERIN	10/20/1975	1040773	140	RG	00
158007	197	36N	10E	02		COMMONWEALTH EDISON	HEELY	00/00/1957	1	1505	RG	00
286620	197	36N	10E	02	1A	JOHN A. CIELENSKI	WALTERS	02/23/1993	197-93-0012-H	150	RG	00
210112	197	36N	10E	02	1A	EUGENE PAULSEN III LOT 4	FYKES	04/11/1988	000074	135	RG	00
210113	197	36N	10E	02	1A	PAUL BILDERHORN	ENTERIN	06/18/1980	001288	180	RG	00
128008	197	36N	10E	02	1A	SIMPSON WELI	LOCKPORT	11/06/1987	1135565	160	RG	00
251254	197	36N	10E	02	10	GRANT SPOONER	LOCKPORT WELL & PUMP	08/11/1973	197-52-0174-H	140	RG	00
① 158009	197	36N	10E	02	1E	ALFORD II	WILL DUPAGE CO	09/27/1974	1033440	120	RG	00
① 158090	197	36N	10E	02	1E	SIMPSON K	LOCKPORT	12/13/1982	1105010	144	RG	00
241567	197	36N	10E	02	1B	CONCRETE BY WARNER, INC.	LOCKPORT WELL & PUMP	04/11/1994	197-94-0019-H	200	RG	00
241582	197	36N	10E	02	1B	TWILA GARZA	LOCKPORT WELL & PUMP	06/27/1994	197-94-0055-H	125	RG	00
	197	36N	10E	02	III	DORNIK M	LOCKPORT	05/10/1981	1099566	120	RG	00
	197	36N	10E	02	III	DORICH E	LOCKPORT	00/00/1984	1114010	105	RG	00
	197	36N	10E	02	III	SIMPSON K LOT 23	LOCKPORT	10/10/1973	1025005	120	RG	00
	197	36N	10E	02	III	BEIRADER W	LOCKPORT	10/30/1973	1043223	150	RG	00
	197	36N	10E	02	III	DIAMOND UNLIN	LOCKPORT	12/30/1986	1128010	200	RG	00
	197	36N	10E	02	2II	BENECA PETROLEUM	WALTERS	12/14/1974	94-0169-H	400	RG	00
	197	36N	10E	02	3E	COMMONWEALTH EDISON	WEHLING	04/15/1974	1027501	1503	RG	00
	197	36N	10E	02	3E	DERUSH H	ENTERIN	05/13/1970	1009600	160	RG	00
	197	36N	10E	02	3D	DORICH J	LOCKPORT	05/23/1973	1023502	115	RG	00
	197	36N	10E	02	4H	WAMPLER M	LOCKPORT	01/08/1972	1015932	160	RG	00
	197	36N	10E	02	5D	KEN LARSON III	FYKES	05/02/1988	001266	100	RG	00
	197	36N	10E	02	5B	KEN LARSON	FYKES	05/02/1988	X1266	105	RG	00
	197	36N	10E	02	5F	COMMONWEALTH EDISON	WEHLING	03/22/1974	1027800	1500	RG	00
	197	36N	10E	02	7H	DARRELL BLASIER III	FYKES	04/20/1988	001142	125	RG	00
	197	36N	10E	02	8A	MATERIAL SERVICE	ENTERIN	01/19/1989	008759	150	RG	00
	197	36N	10E	02	8A	MATERIAL SERVICE CORP	ENTERIN	04/05/1989	009573	180	RG	00
	197	36N	10E	02	8A	MATERIAL SERVICE CORP	ENTERIN	04/06/1989	X9573	180	RG	00
	197	36N	10E	02	0F	PUBLIC SERV CO	HEELY	03/00/1957	1	1507	OGC	00
	197	36N	10E	02	0H	PUBLIC SERV CO	HEELY	00/00/1952	1	1513	OGC	00
	197	36N	10E	03		ROHEE FILLING STATION	OTTHEYER	00/00/1933	1	81	OG	00
	197	36N	10E	03		PARTER	GUTH	00/00/1949	1	90	RG	00
	197	36N	10E	03		MATERIALS PAVING CO	MILLER	09/00/1960	1	159	RG	00
	197	36N	10E	03	4H	ERNEST KOCH	WELLENDOFF	09/12/1988	005486	153	RG	00
	197	36N	10E	03	6H	MATERIAL SERVICE CORP	MILLER	09/00/1960	1	159	OG	00
	197	36N	10E	03	6H	HELESTICH R	LOCKPORT	12/21/1977	1070276	130	RG	00
	197	36N	10E	03	7E	PUBLIC SERV CO	HEELY	05/00/1952	1	1532	OGC	00



UNOCAL
STREET
60102
500
NUMBER

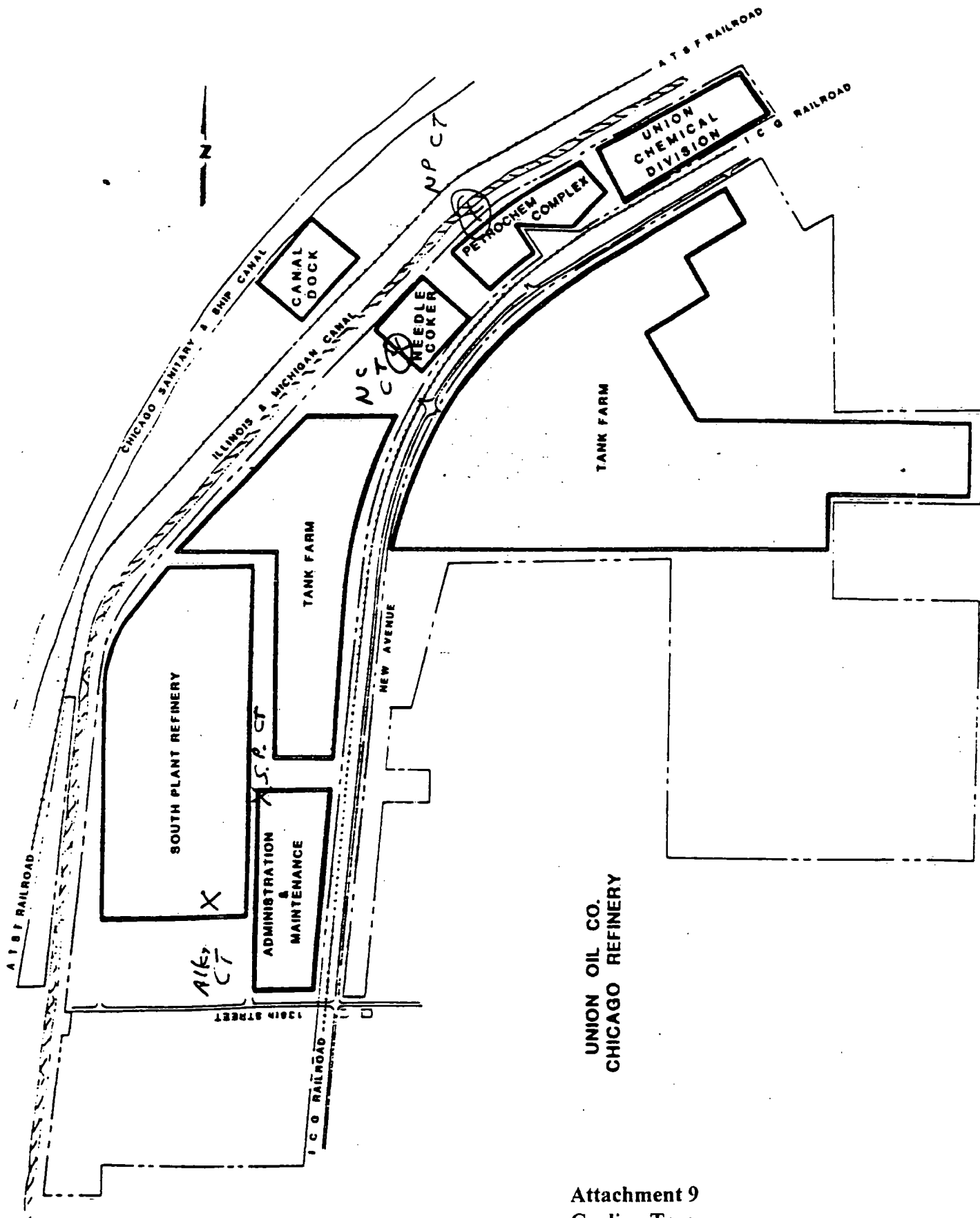
UNOCAL
UNOCAL CORPORATION
LEMONT REFINERY

SITE PLAN
FORMER UST LOCATIONS
THE UNO-VEN COMPANY
135TH STREET & NEW AVENUE / LEMONT, IL

DRAWN BY KRZ
CHECKED BY JMH
SCALE 1"=1000'
DATE JUNE 1993

DRAWING NUMBER
93--0271.01
SHEET NUMBER
1-OF-1

REVISION




Attachment 9
Cooling Tower
Location Map

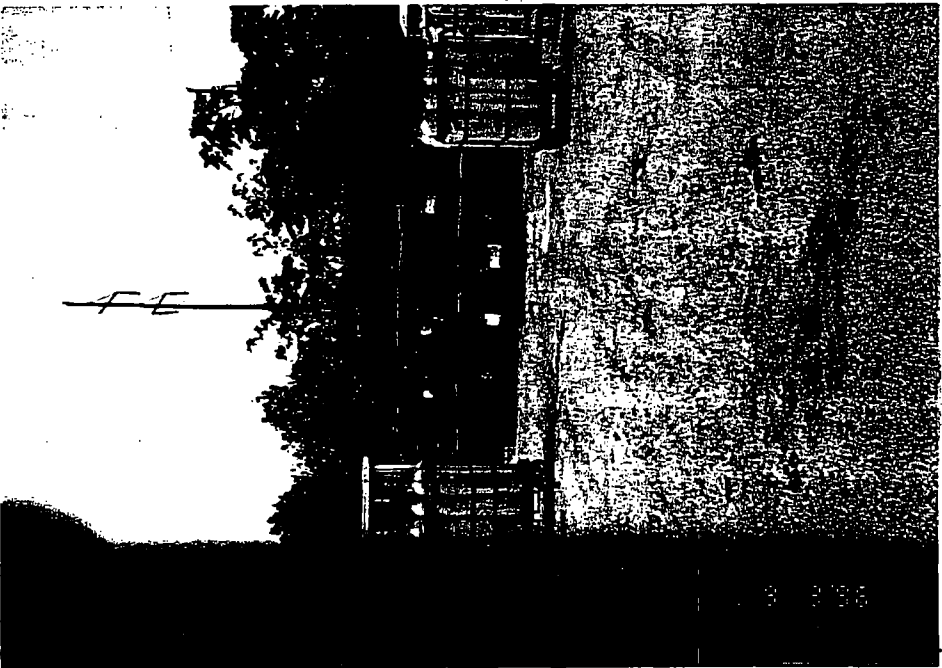


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004 CO.: W.I.I
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: West	
COMMENTS: SWMU #1 Drum Storage Area	
ROLL #: A	
PHOTO #: 1	

DATE: 09/03/96	SITE #: 1978030004 CO.: W.I.I
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: West	
COMMENTS: SWMU #1 Drum Storage Area	
ROLL #: A	
PHOTO #: 2	



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

BY: Ron Rybolt

FILE:

PICTURE TAKEN

TOWARD: South

COMMENTS:

SWMU #1
Drum Storage Area

ROLL #: A

PHOTO #: 3



DATE: 09/03/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

BY: Ron Rybolt

FILE:

PICTURE TAKEN

TOWARD: South

COMMENTS:

SWMU #1
Drum Storage Area

ROLL #: A

PHOTO #: 4







State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: Northwest	
COMMENTS: SWMU # 29 Former - one time - Drum Storage Area	
ROLL #: A	
PHOTO #: 5	

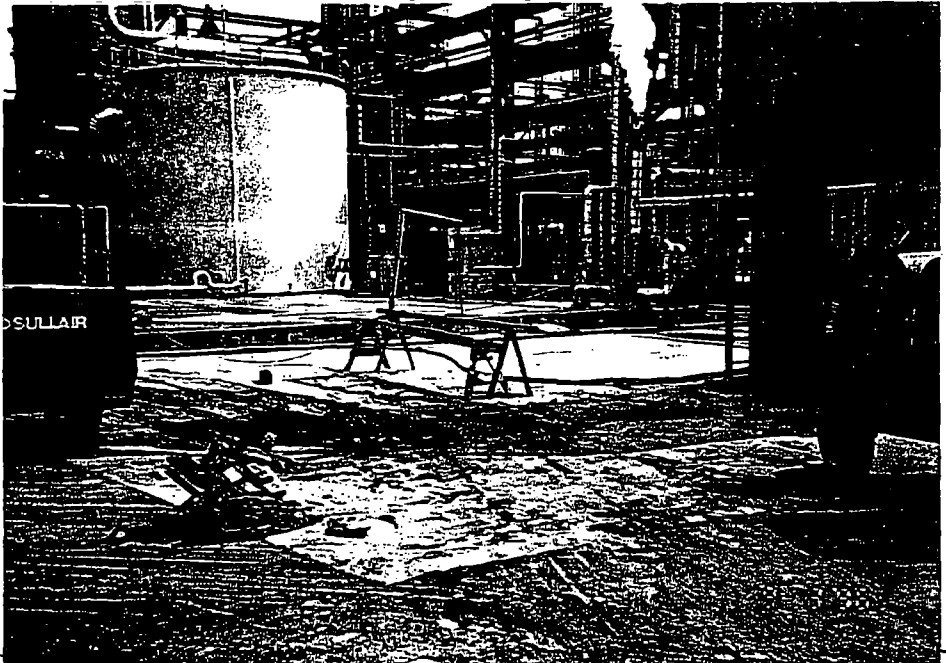
DATE: 09/03/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: Northeast	
COMMENTS: SWMU # 29 Former - one time - Drum Storage Area	
ROLL #: A	
PHOTO #: 6	




State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: L978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: Southeast	
COMMENTS: SWMU # 28 Filter press and sludge dewatering at Alky unit.	
ROLL #: A	
PHOTO #: 7	

DATE: 09/03/96	SITE #: L978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: Northeast	
COMMENTS: SWMU # 28 Filter press and sludge dewatering at Alky unit	
ROLL #: A	
PHOTO #: 8	



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96

SITE #: 1978030004 CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybolt

PICTURE TAKEN

TOWARD: North

COMMENTS:

Swmu # 25A

Heat Exchanger Bundle
Cleaning Pad

ROLL #: A

PHOTO #: 9



DATE: 09/03/96

SITE #: 1978030004 CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybolt

PICTURE TAKEN

TOWARD: Northeast

COMMENTS:

Swmu # 25A

Heat Exchanger Bundle
Cleaning Pad

ROLL #: A

PHOTO #: 10

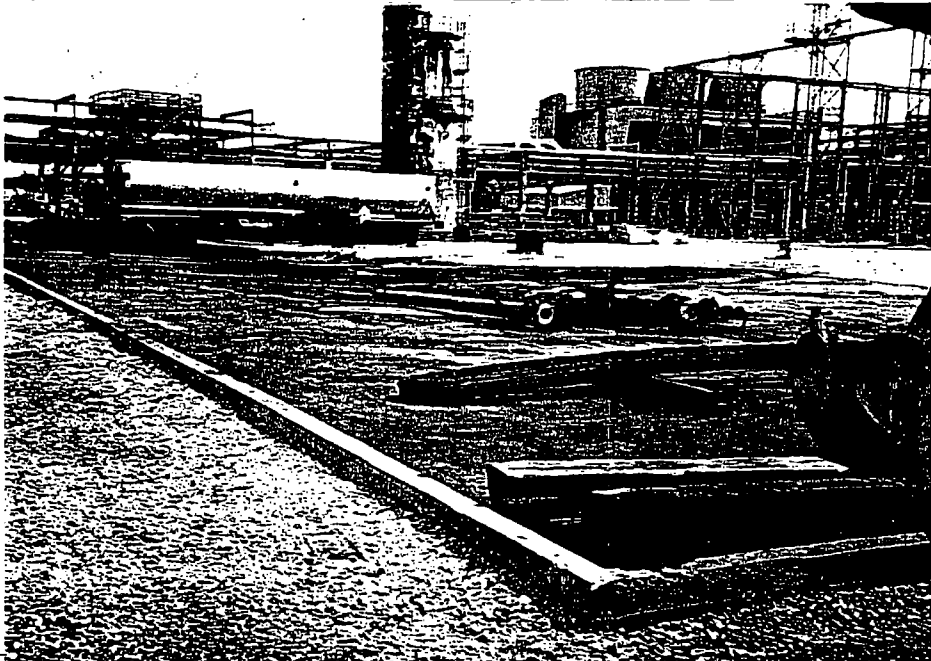


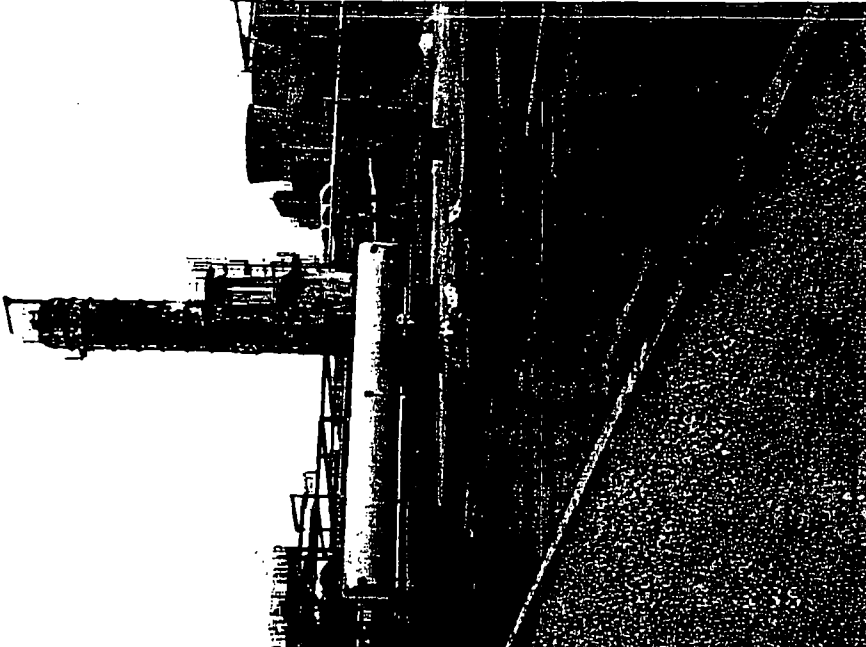


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: L978030004 CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: East	
COMMENTS: Swmu # 25B Heat Exchanger Bundle Cleaning Pad	
ROLL #: A	
PHOTO #: 11	


DATE: 09/03/96	SITE #: 1978030004 CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: East	
COMMENTS: Swmu # 25B Heat Exchanger Bundle Cleaning Pad.	
ROLL #: A	
PHOTO #: 12	

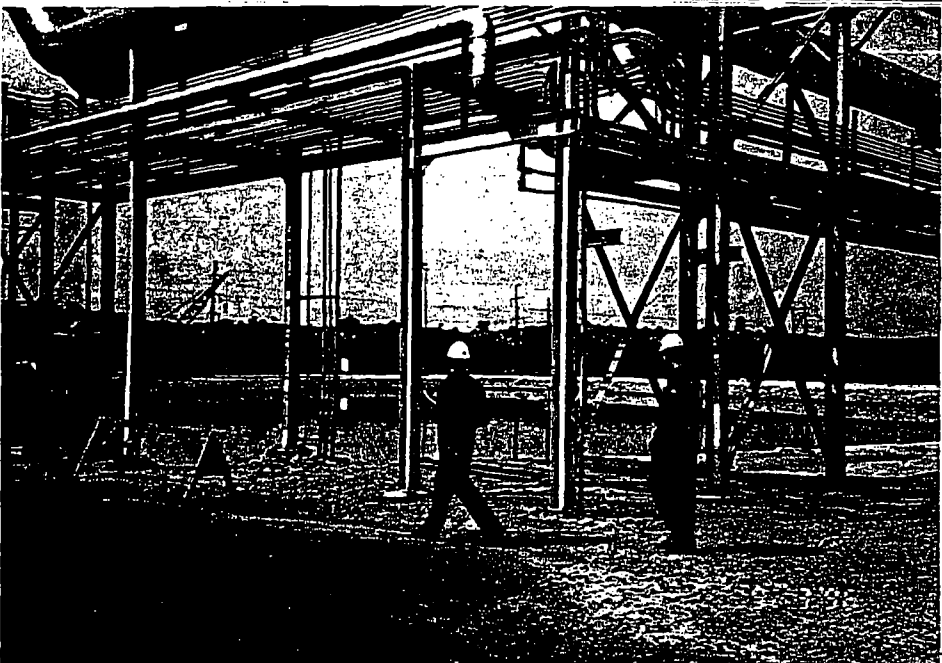


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004 CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: West	
COMMENTS: SWMU # 24 Former API Separator	
ROLL #: A	
PHOTO #: 13	

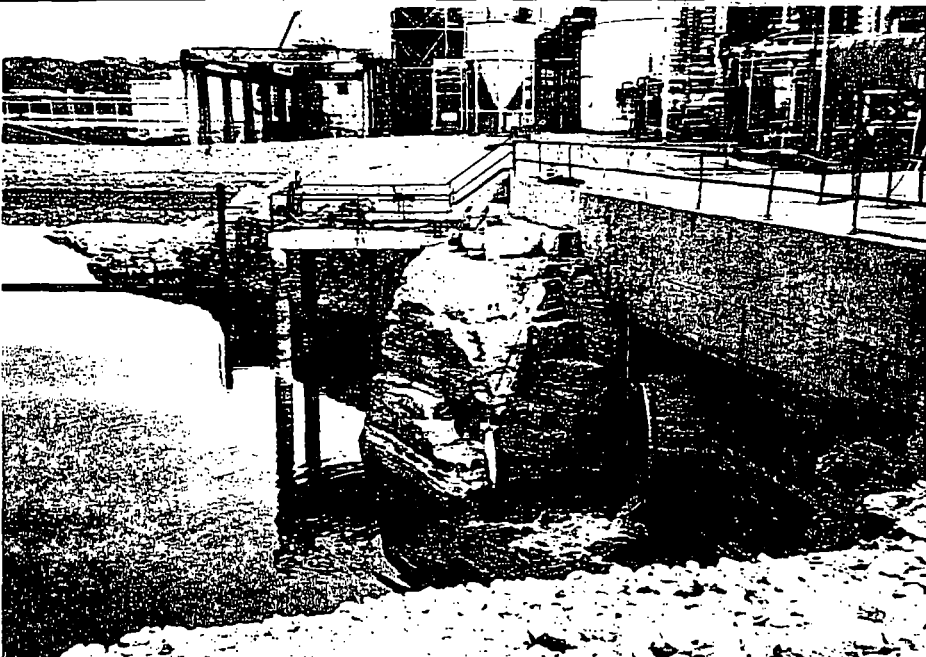
DATE: 09/03/96	SITE #: 1978030004 CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: Northwest	
COMMENTS: SWMU # 23D Treated Water Basin	
ROLL #: A	
PHOTO #: 14	




State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: L978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: East	
COMMENTS: Swmu # 22 East Basin	
ROLL #: A	
PHOTO #: 15	

DATE: 09/03/96	SITE #: L978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: North west	
COMMENTS: Swmu # 22 Northwest Basin	
ROLL #: B	
PHOTO #: 1	



INSPECTION PHOTOS

DATE: 09/03/96

SITE #: 1978030004 CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybalt

PICTURE TAKEN

TOWARD: Northeast

COMMENTS:

Swmu #21

Vertical Oil Storage
Tanks

ROLL #: B

PHOTO #: 2



DATE: 09/03/96

SITE #: 1978030004 CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybalt

PICTURE TAKEN

TOWARD: Northeast

COMMENTS:

Sludge Drying Area

ROLL #: B

PHOTO #: 3





State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybolt

PICTURE TAKEN

TOWARD: South

COMMENTS:

Coke Pit

ROLL #:

B

PHOTO #:

4



DATE: 09/03/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybolt

PICTURE TAKEN

TOWARD: East

COMMENTS:

Swmu # 19D

Former Sludge Drying
Area

ROLL #:

B

PHOTO #:

5







State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004 CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: East	
COMMENTS: Open Flow Ditch	
ROLL #: B	
PHOTO #: 6	


DATE: 09/03/96	SITE #: 1978030004 CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: South	
COMMENTS: SWMU # 20 Active Drum Staging Area	
ROLL #: B	
PHOTO #: 7	




State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: South	
COMMENTS: Swmu # 18 & 19 Waste Staging Area + Former Sludge Drying Area.	
ROLL #: B	
PHOTO #: 8	

DATE: 09/03/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD:	
COMMENTS: South Plant Cooling tower	
ROLL #: B	
PHOTO #: 9	



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybolt

PICTURE TAKEN

TOWARD: South

COMMENTS:

Swmu # 23

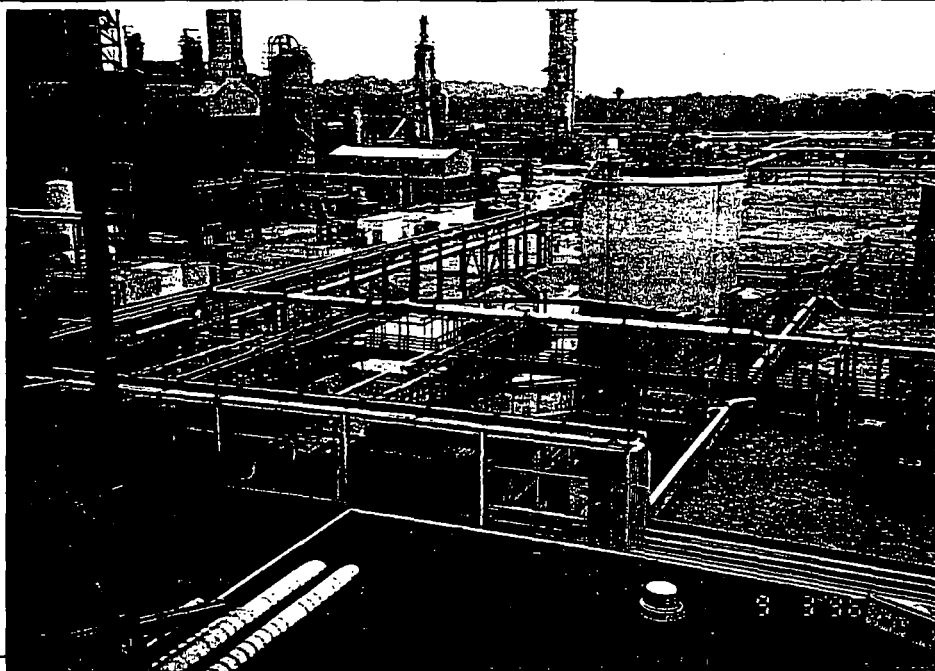
Water & Waste Water
Treatment Plant

ROLL #:

B

PHOTO #:

10



DATE: 09/03/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybolt

PICTURE TAKEN

TOWARD: South

COMMENTS:

Swmu # 23

Water & Wastewater
Treatment Plant

ROLL #:

B

PHOTO #:

11

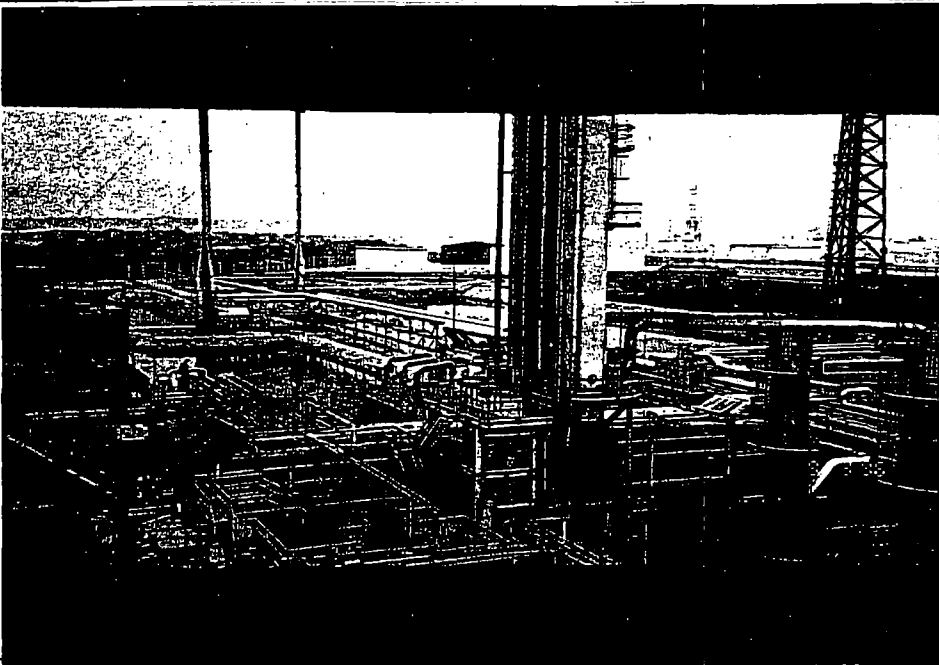





State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: Northeast	
COMMENTS:	
ROLL #: B	
PHOTO #: 12	

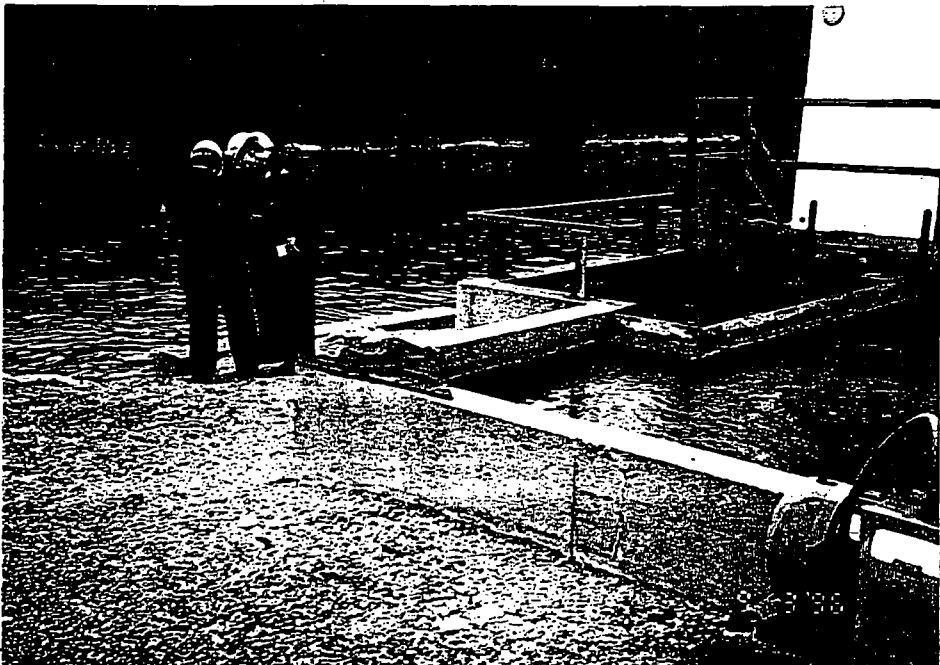
DATE: 09/03/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: Southwest	
COMMENTS: Sulfur Train Car Loading Rack.	
ROLL #: C	
PHOTO #: 1	

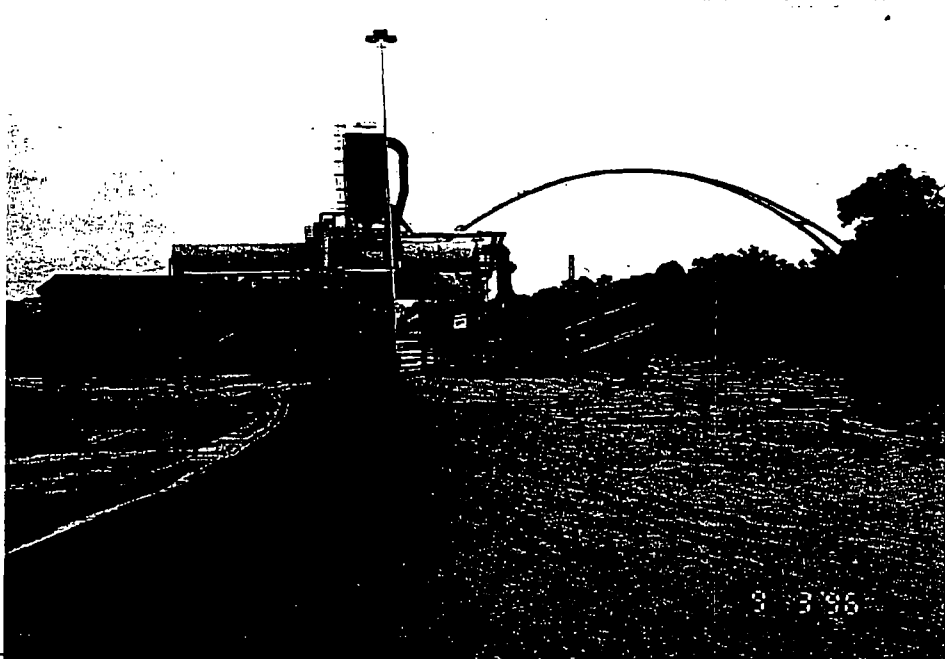


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: Northwest	
COMMENTS: Outfall into Chicago Ship and Sanitary Canal.	
ROLL #: C	
PHOTO #: 2	

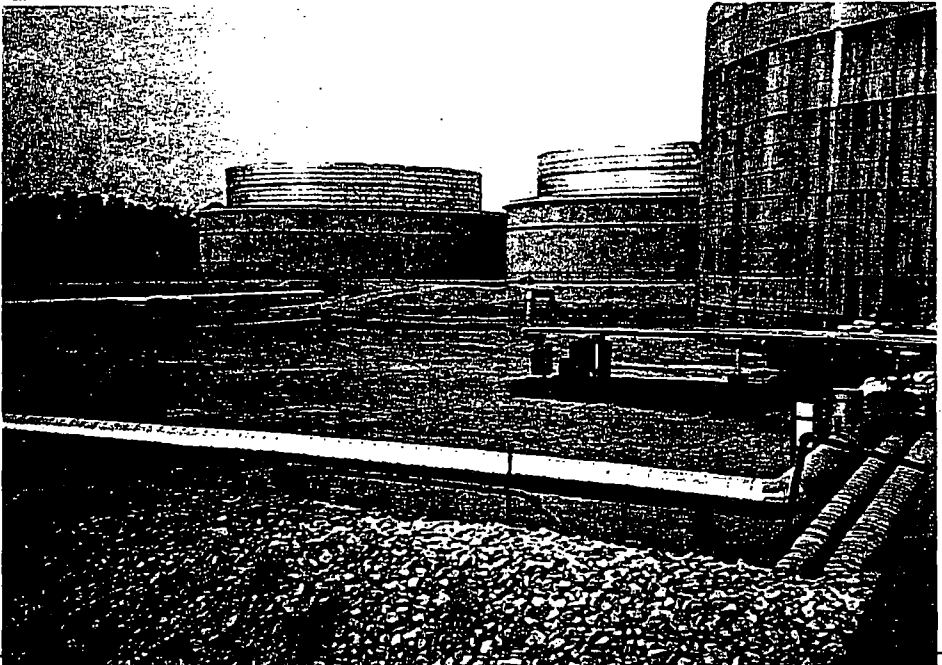
DATE: 09/03/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: South	
COMMENTS: Barge Loading Area	
ROLL #: C	
PHOTO #: 3	

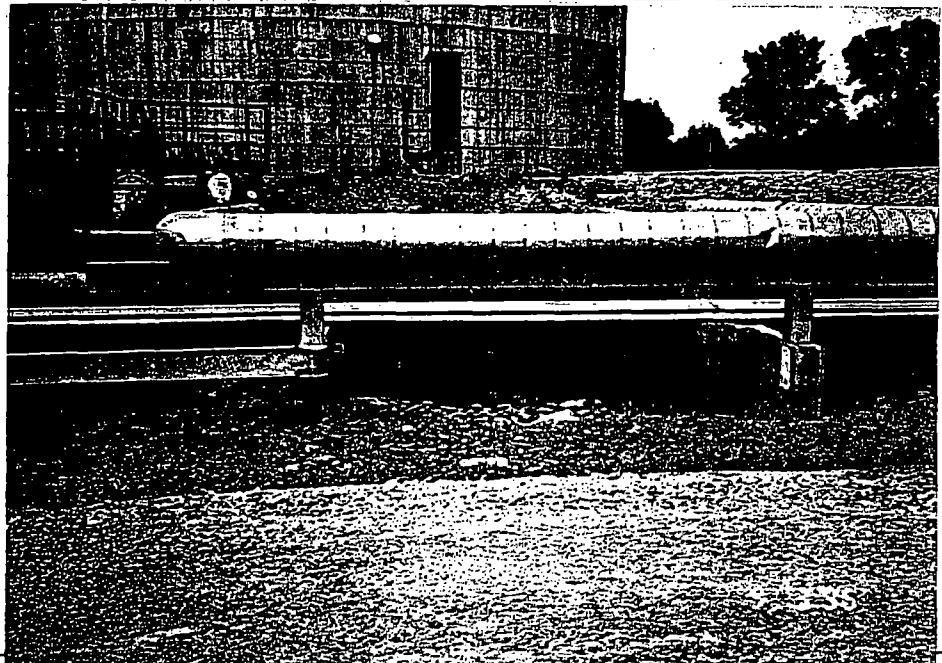


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004 CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: North	
COMMENTS: Swmu # 5 Former Dump Area for Lime Sludge; Seneca Tank Location	
ROLL #: C	
PHOTO #: 4	

DATE: 09/03/96	SITE #: 1978030004 CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: North	
COMMENTS: Swmu # 4 Hot Oil Line, Seneca Petroleum Storage Tank	
ROLL #: C	
PHOTO #: 5	



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96

SITE #: 1978030004 CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

BY: Ron Rybolt

FILE:

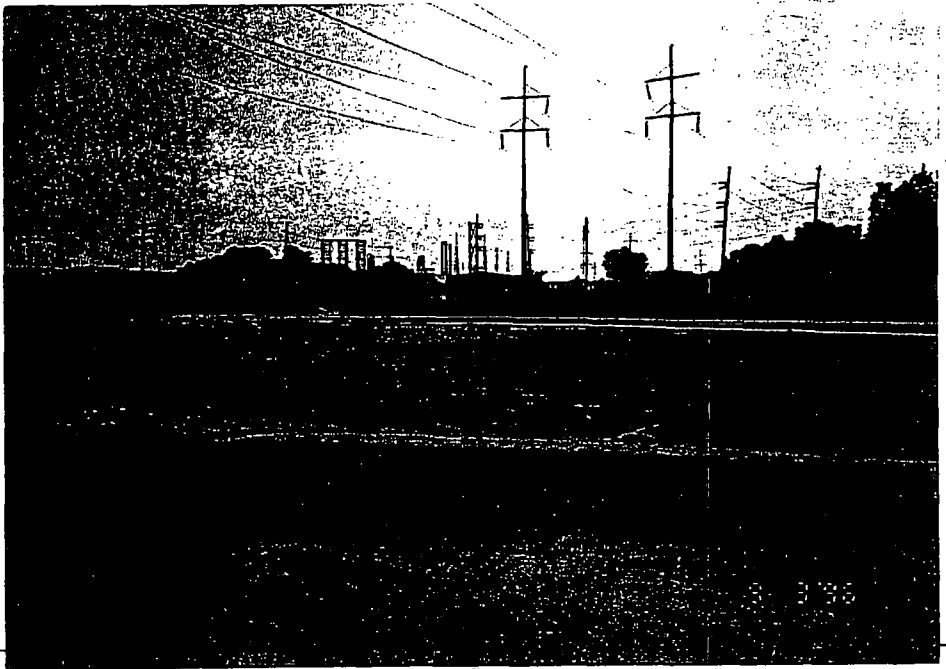
PICTURE TAKEN

TOWARD: South

COMMENTS:

Swmu # 8

Demolition Debris



ROLL #: C

PHOTO #: 6

DATE: 09/03/96

SITE #: 1978030004 CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

BY: Ron Rybolt

FILE:

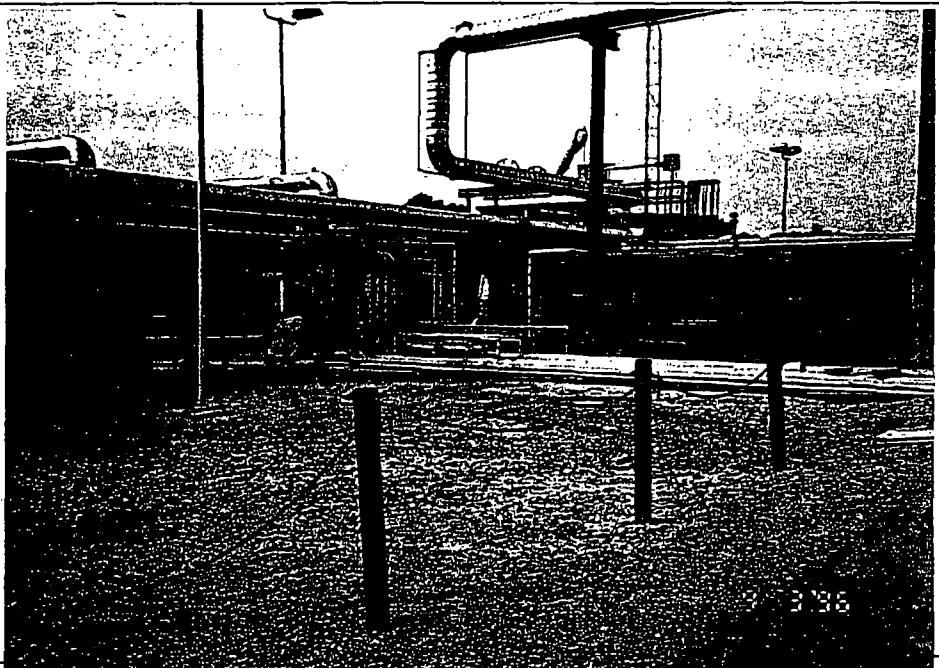
PICTURE TAKEN

TOWARD: North

COMMENTS:

Swmu # 6 Former

Drum Storage Area



ROLL #: C

PHOTO #: 7



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96

SITE #: L978030004 CO: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

BY: Ron Rybolt

FILE:

PICTURE TAKEN

TOWARD: South

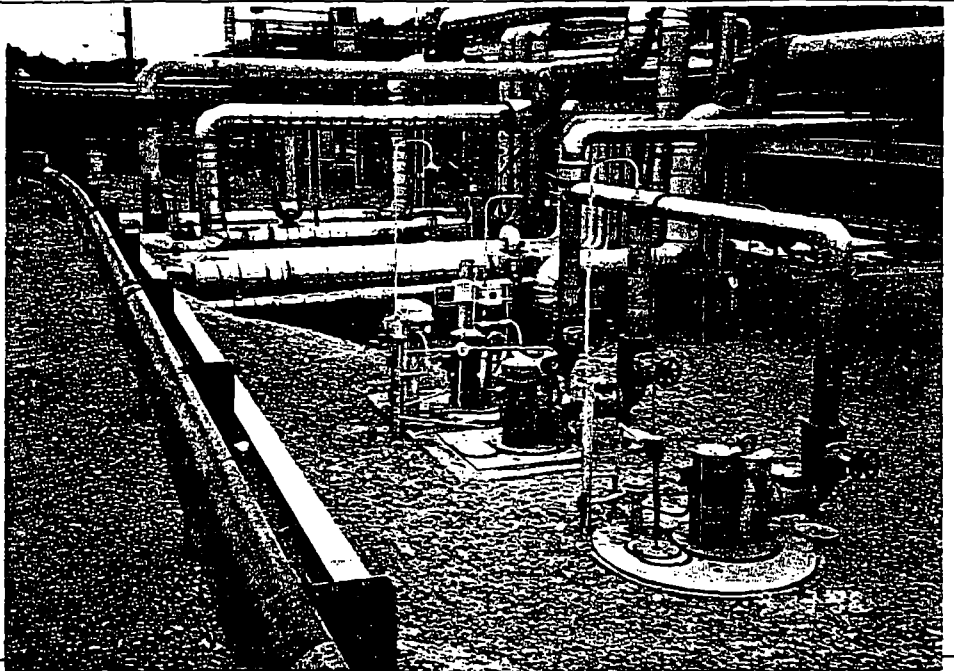
COMMENTS:

Sumu #7

Interceptor Trench;
Canal Dock

ROLL #: C

PHOTO #: 8



DATE: 09/03/96

SITE #: L978030004 CO: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

BY: Ron Rybolt

FILE:

PICTURE TAKEN

TOWARD: North west

COMMENTS:

Sumu # 25C

Heat Exchanger Cleaning
Pad.

ROLL #: C

PHOTO #: 9

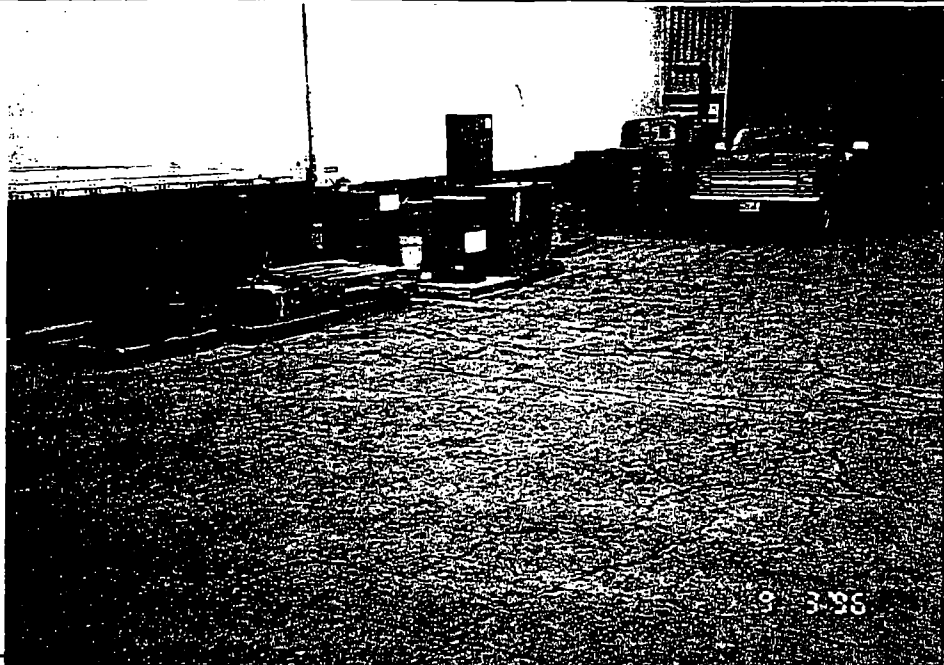





State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/03/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:	
PICTURE TAKEN TOWARD: West		
COMMENTS: Swmu # 26 Empty Drum Collection at Maintenance Building		
ROLL #: C		
PHOTO #: 10		


DATE: 09/03/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:	
PICTURE TAKEN TOWARD: Southwest		
COMMENTS: Swmu # 27 Laboratory Container Storage Area.		
ROLL #: C		
PHOTO #: 11		

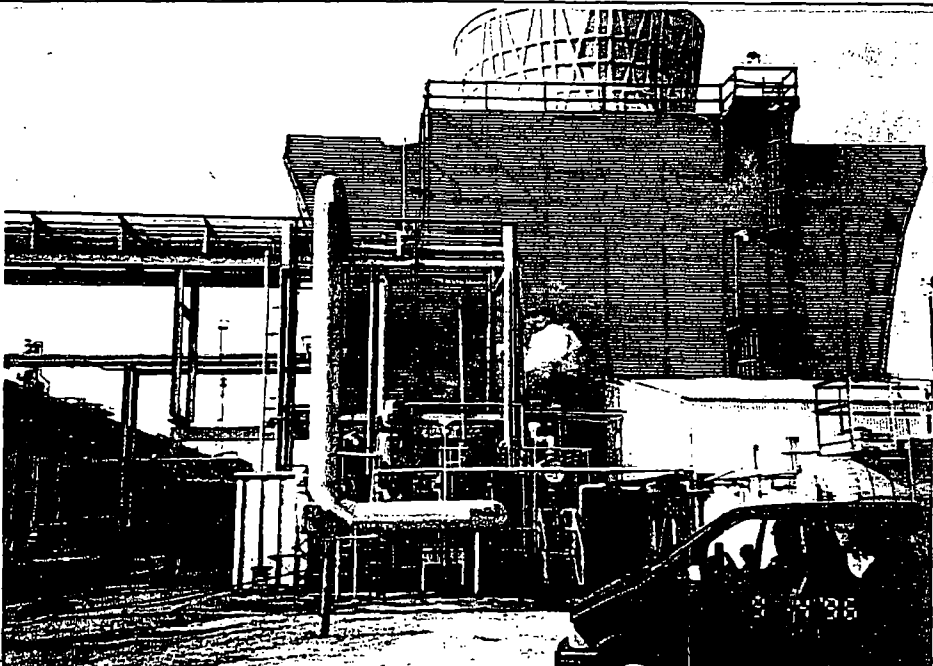


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybick	FILE:
PICTURE TAKEN TOWARD:	
COMMENTS:	
ROLL #: C	
PHOTO #: 12	

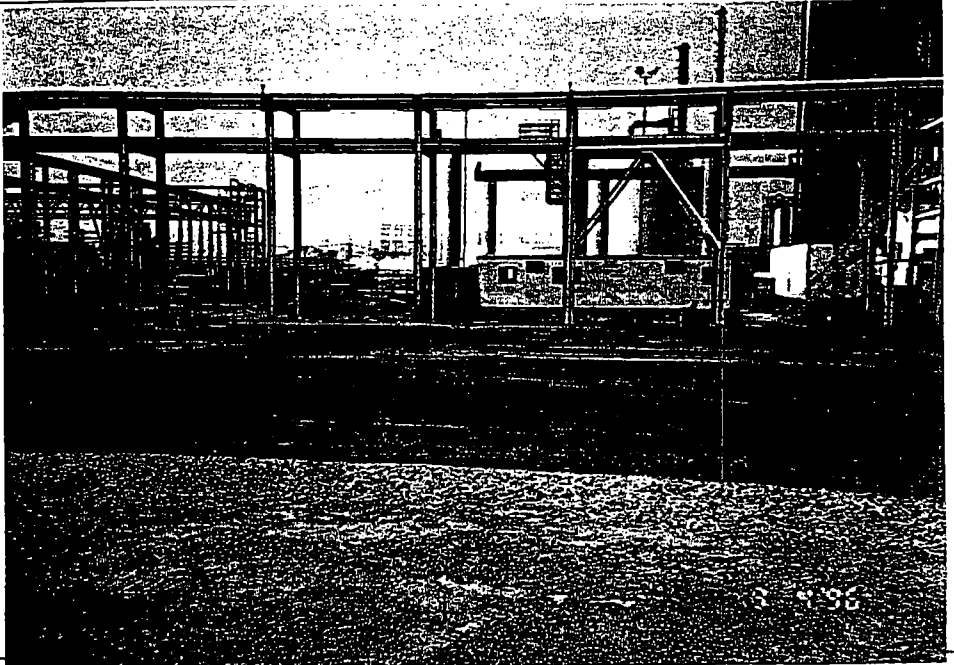
DATE: 09/05/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybick	FILE:
PICTURE TAKEN TOWARD: Southwest	
COMMENTS: North Plant Cooling Tower	
ROLL #: D	
PHOTO #: 1	




State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: South	
COMMENTS: Swmu # 10 North Plant Heat Exchanger Bundle Cleaning Pad	
ROLL #: D	
PHOTO #: 2	

DATE: 09/05/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: North	
COMMENTS: Swmu # 9 Former Process Area	
ROLL #: D	
PHOTO #: 3	



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

BY: Ron Rybolt

FILE:

PICTURE TAKEN

TOWARD: Northeast

COMMENTS:

Sumu # 30

Former Process Blending Unit
at the Process Blend Center

ROLL #: D

PHOTO #: 4



DATE: 09/05/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

BY: Ron Rybolt

FILE:

PICTURE TAKEN

TOWARD: North

COMMENTS:

Red Die Spill Area

ROLL #: D

PHOTO #: 5







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INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: East	
COMMENTS: Red Die Spill Area	
ROLL #: D	
PHOTO #: 6	

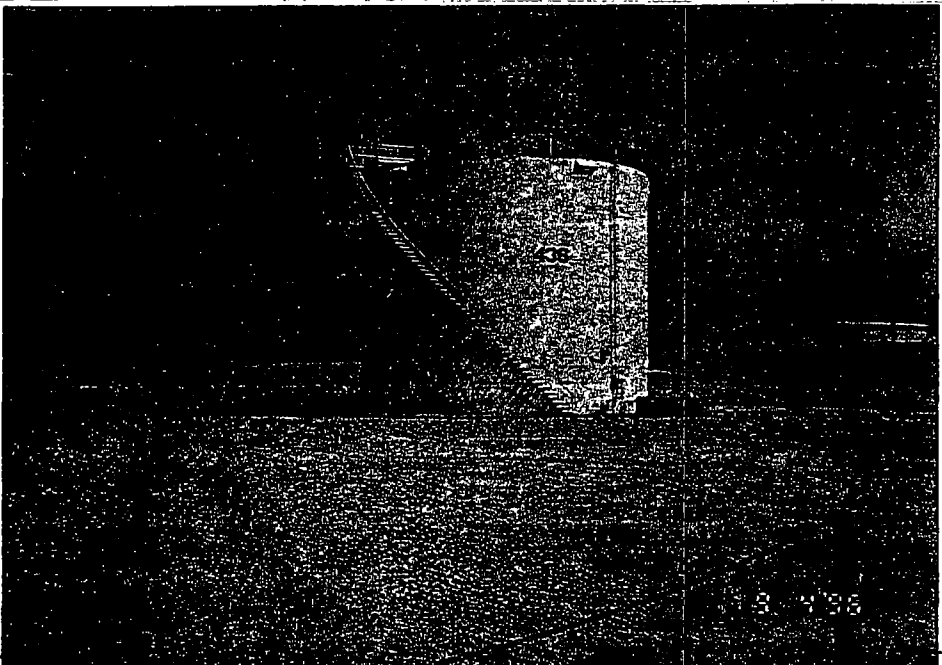
DATE: 09/05/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Rybolt	FILE:
PICTURE TAKEN TOWARD: East Southwest	
COMMENTS: Swmu #12 Tank 201 and Proximate Area	
ROLL #: D	
PHOTO #: 7	




State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:	
PICTURE TAKEN TOWARD: North		
COMMENTS: SWMU # 11A Recycle Tank 436		
ROLL #: D		
PHOTO #: 8		

DATE: 09/05/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:	
PICTURE TAKEN TOWARD: West		
COMMENTS: SWMU # 13 Sludge Drying Area		
ROLL #: D		
PHOTO #: 9		



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybalt

PICTURE TAKEN

TOWARD: Northeast

COMMENTS:

Swmu #11B

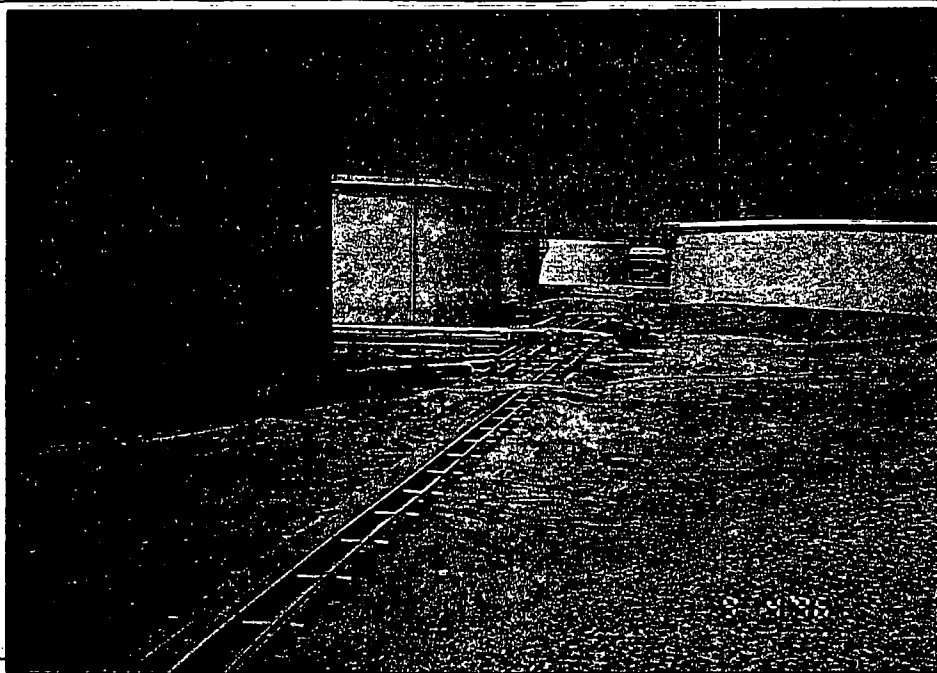
Recycle Tank 301

ROLL #:

D10

PHOTO #:

10



DATE: 09/05/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Ron Rybalt

PICTURE TAKEN

TOWARD: North

COMMENTS:

French Drain Area

ROLL #:

D

PHOTO #:

11




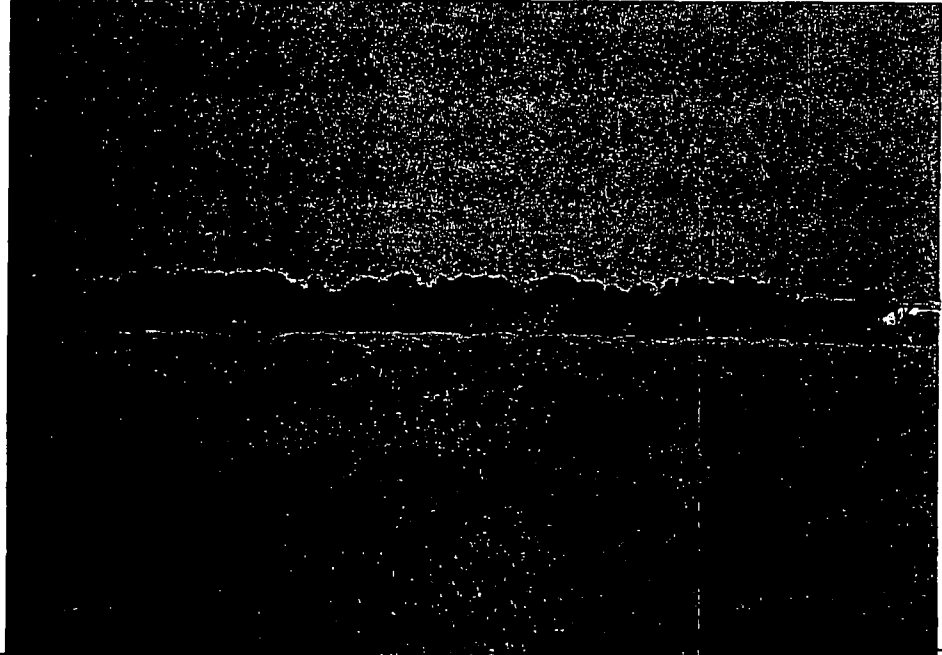


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Ron Rybolt	FILE:
PICTURE TAKEN TOWARD: North	
COMMENTS:	
ROLL #: D	
PHOTO #: 12	


DATE: 09/05/96	SITE #: 1978030004 CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:
PICTURE TAKEN TOWARD: North	
COMMENTS: Swmu # 14A Land Treatment Facility	
ROLL #: E	
PHOTO #: 1	




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ENVIRONMENTAL PROTECTION AGENCY


INSPECTION PHOTOS


DATE: 09/04/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UND-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: North		
COMMENTS: Swmu # 14A Land Treatment Facility Areal		
ROLL #: E		
PHOTO #: 2		

DATE: 09/04/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UND-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: North		
COMMENTS: Swmu # 15 Wastewater Treatment Sludge Decant Basins		
ROLL #: E		
PHOTO #: 3		



INSPECTION PHOTOS

DATE: 09/04/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: North		
COMMENTS: Swmu # 15 Wastewater Treatment Sludge Decant Basins		
ROLL #: E		
PHOTO #: 4		

DATE: 09/04/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: South West		
COMMENTS: Swmu # 15 Wastewater Treatment Sludge Decant Basins		
ROLL #: E		
PHOTO #: 5		



INSPECTION PHOTOS

DATE: 09/04/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: South

COMMENTS:

Sump # 15

ROLL #:

E

PHOTO #:

6



DATE: 09/04/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: Southwest

COMMENTS:

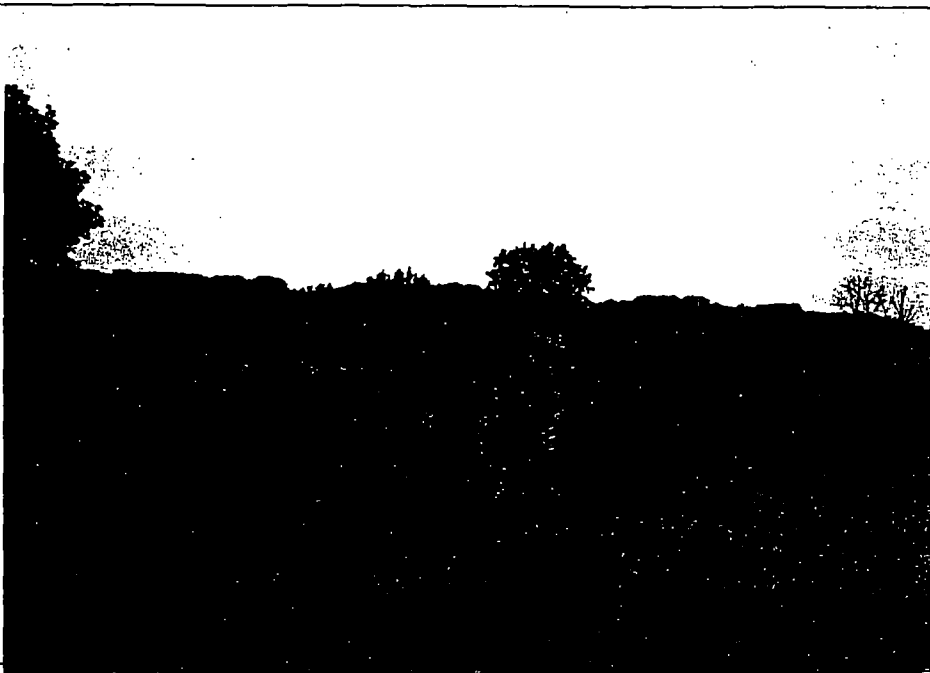
Sump # 15

ROLL #:

E

PHOTO #:

7







State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/04/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: East		
COMMENTS: Swmu #14C Land Treatment Facility Area 2		
ROLL #: E		
PHOTO #: 8		


DATE: 09/04/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS:		
ROLL #: E		
PHOTO #: 9		




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ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/04/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: West		
COMMENTS: Swmu # 17 Intermittent Stream/ Stormwater Conveyance		
ROLL #: E		
PHOTO #: 10		


DATE: 09/04/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS: Swmu # 17 Intermittent Stream/ Stormwater Conveyance		
ROLL #: E		
PHOTO #: 11		




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ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/04/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS: Swmu # 17 Intermittent Stream / Stormwater Conveyance		
ROLL #: E		
PHOTO #: 12		


DATE: 09/04/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: West		
COMMENTS: SWMU # 148 Land Treatment Facility Area 3		
ROLL #: F		
PHOTO #: 1		




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ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/04/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS: Swmu # 17 Intermittent Stream / Stormwater Conveyance		
ROLL #: F		
PHOTO #: 2		

DATE: 09/04/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: South		
COMMENTS: Swmu # 14D Land Treatment Facility Area 4		
ROLL #: F		
PHOTO #: 3		



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/04/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: South

COMMENTS:

Swmu # 14D
Land Treatment Facility
Area 4

ROLL #:

F

PHOTO #:

4



DATE: 09/04/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: West

COMMENTS:

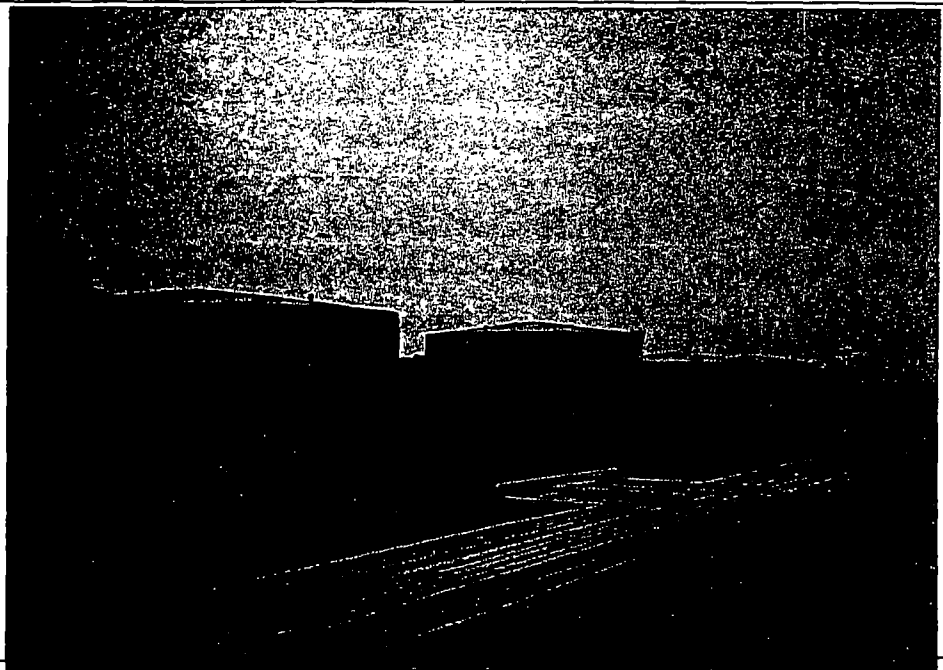
East Tank Farm

ROLL #:

F

PHOTO #:

5




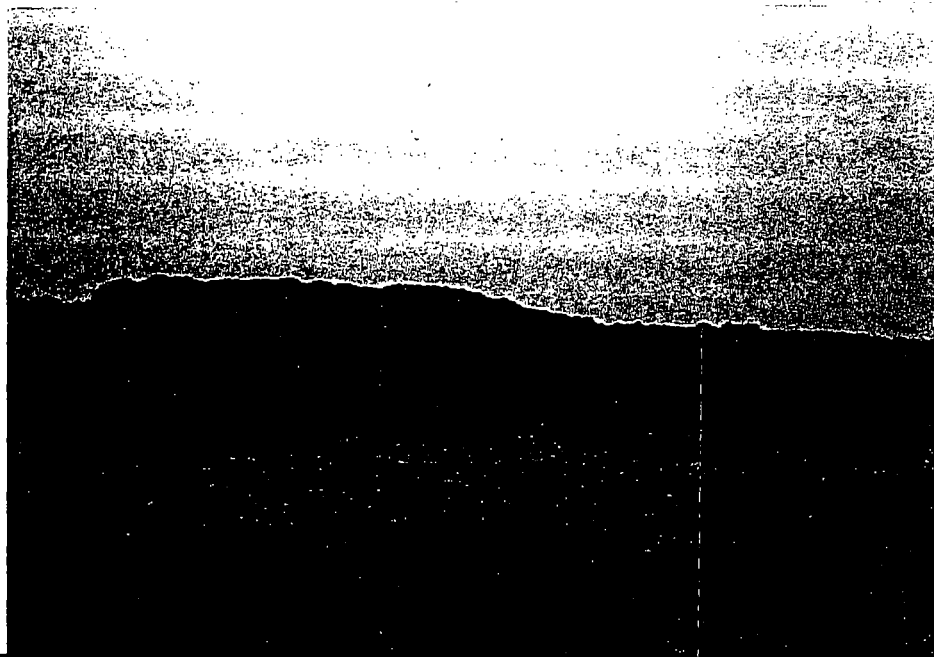


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ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/04/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: West		
COMMENTS: East Tank Farm		
ROLL #: F		
PHOTO #: 6		


DATE: 09/04/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: West		
COMMENTS: Swmu # 16 Sludge Application Area		
ROLL #: F		
PHOTO #: 7		




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ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/04/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: North		
COMMENTS: Swmu # 31B-E Former UST's		
ROLL #: F		
PHOTO #: 8		

DATE: 09/04/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: North west		
COMMENTS: Swmu # 31B-E Former UST's		
ROLL #: F		
PHOTO #: 9		



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/04/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: Southwest

COMMENTS:

Swmu # 31 B-E

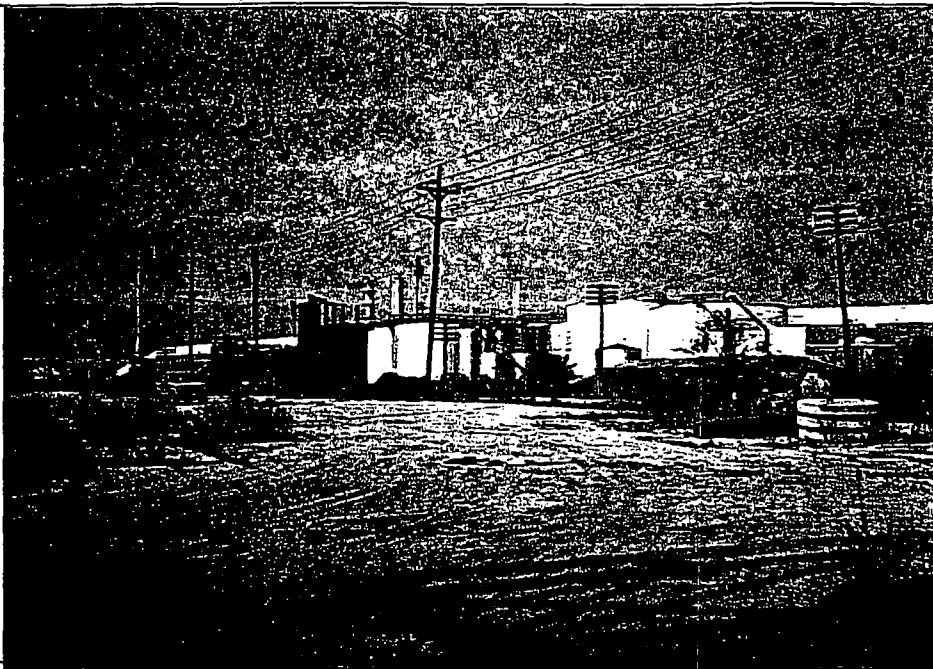
Former UST's

ROLL #:

F

PHOTO #:

10



DATE: 09/04/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: North

COMMENTS:

Swmu # 31 A

Solvent Loading Rack

ROLL #:

F

PHOTO #:

10

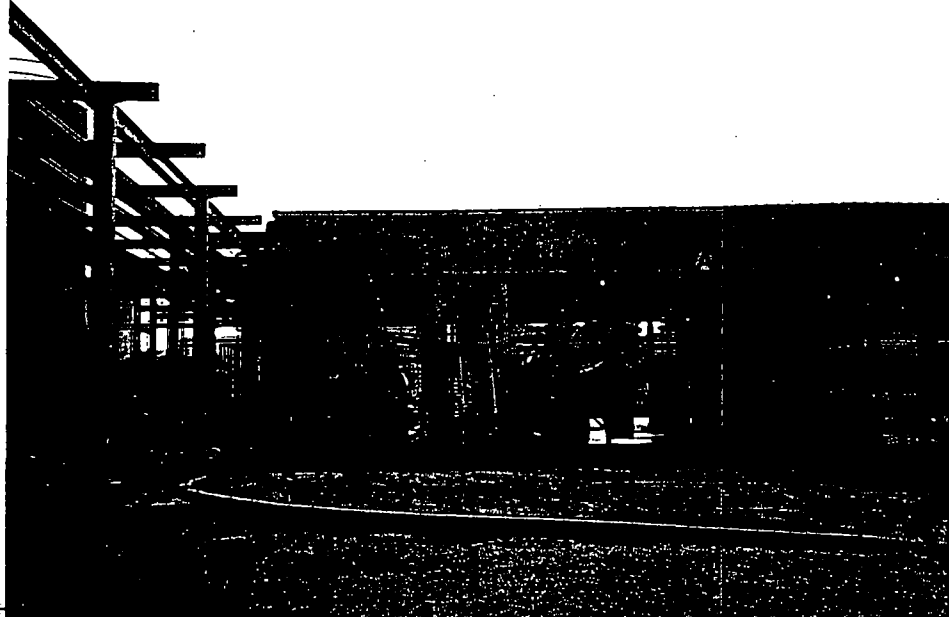





State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS:		
ROLL #: F		
PHOTO #: 12		

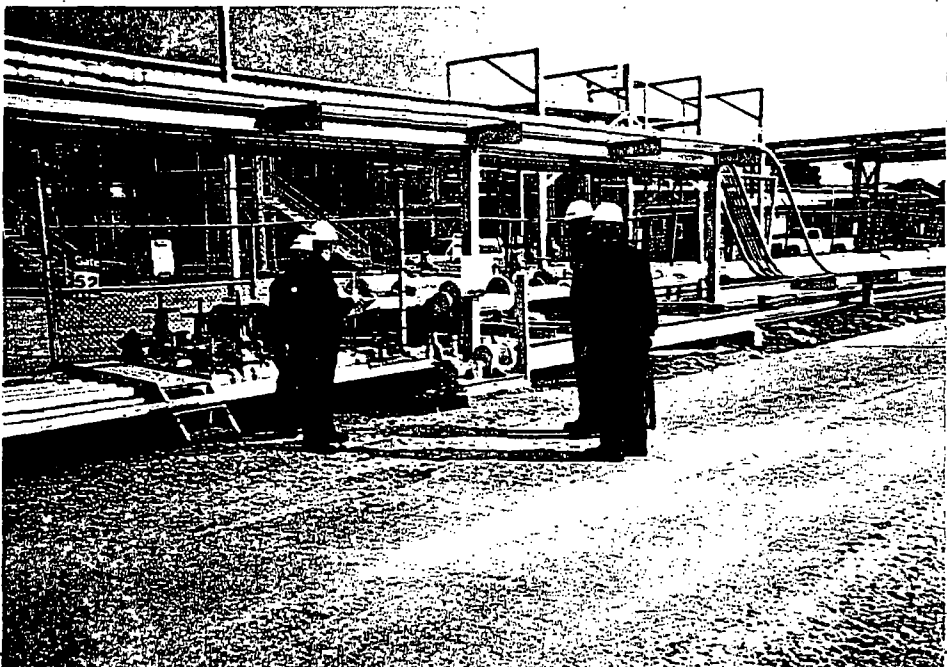
DATE: 09/05/96	SITE #: 1978030004	CO: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS:		
ROLL #: F		
PHOTO #: 13		

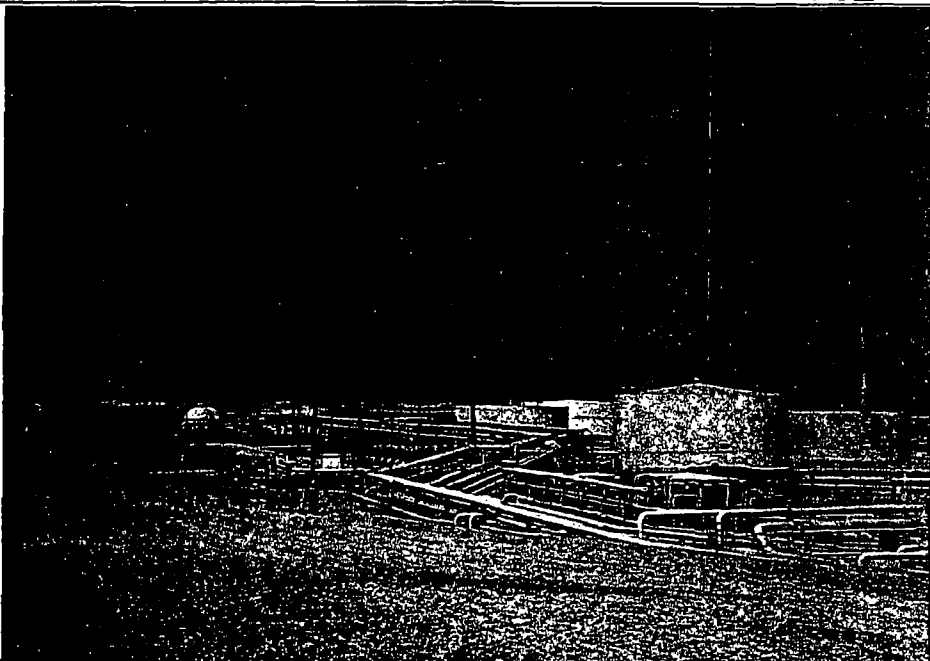


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS:		
ROLL #: F		
PHOTO #: 14		

DATE: 09/05/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: West		
COMMENTS: East Tank Farm		
ROLL #: F		
PHOTO #: 15		



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: West

COMMENTS: East
Tank Farm

ROLL #:

F

PHOTO #:

16



DATE: 09/05/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD:

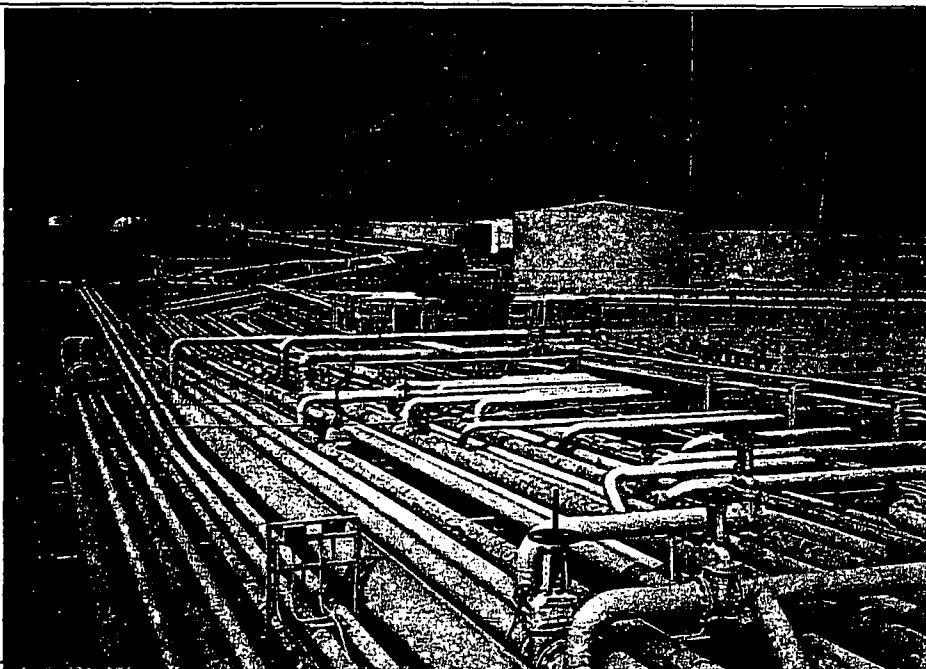
COMMENTS:

ROLL #:

F

PHOTO #:

17

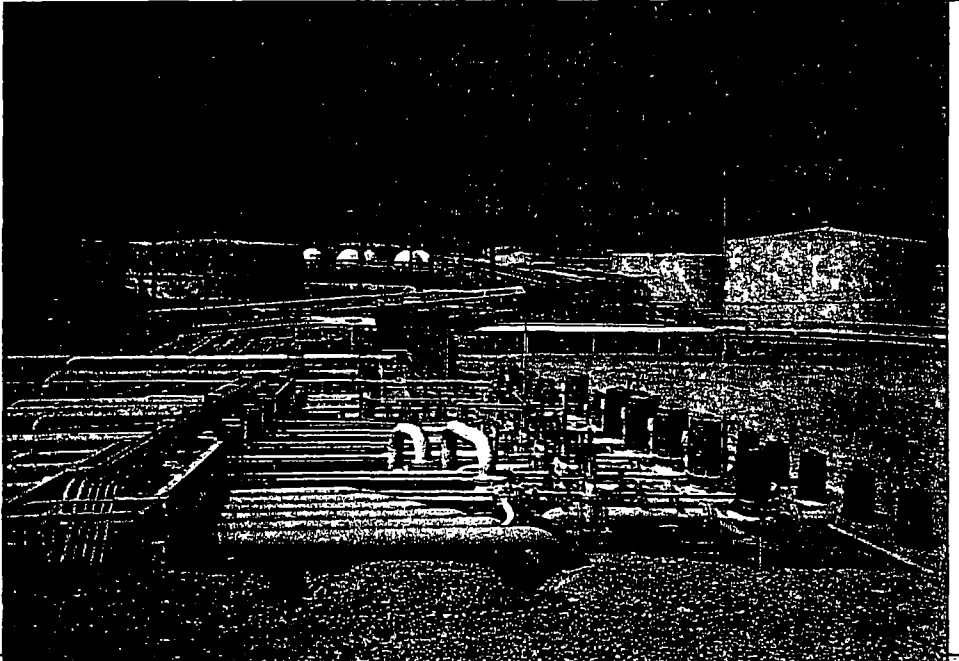


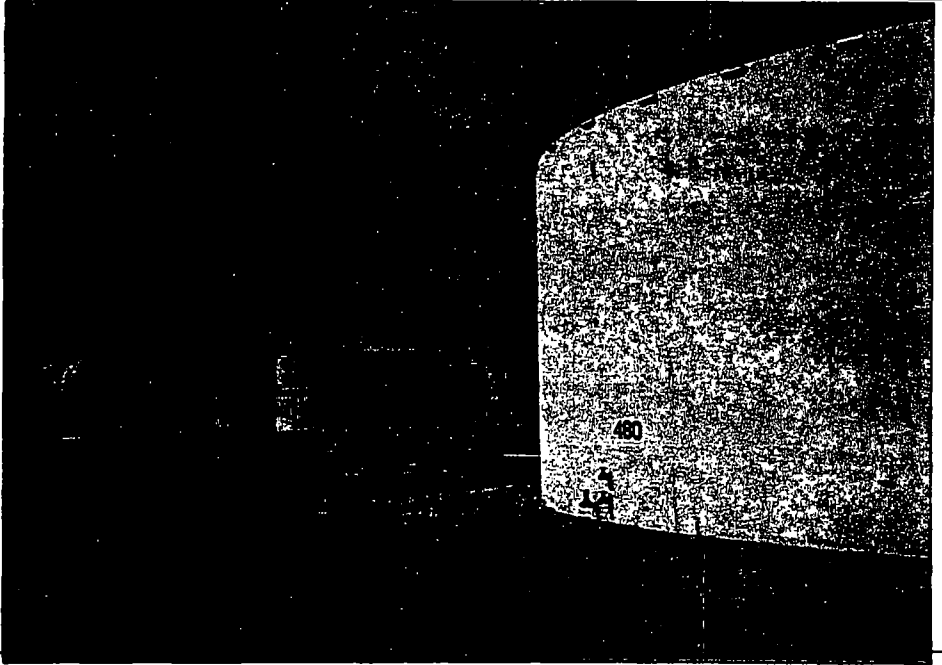


State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: North		
COMMENTS: East Tank Farm		
ROLL #: F		
PHOTO #: 18		

DATE: 09/05/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS: West Tank Farm		
ROLL #: F		
PHOTO #: 19		



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ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: South

COMMENTS:

West Tank Farm

ROLL #:

F

PHOTO #:

20



DATE: 09/05/96

SITE #: 1978030004

CO.: Will

TIME:

SITE NAME: UNO-VEN, Chicago Refinery

PHOTOGRAPH TAKEN

FILE:

BY: Terri Blake Myers

PICTURE TAKEN

TOWARD: South

COMMENTS:

West Tank Farm

ROLL #:

F

PHOTO #:

21

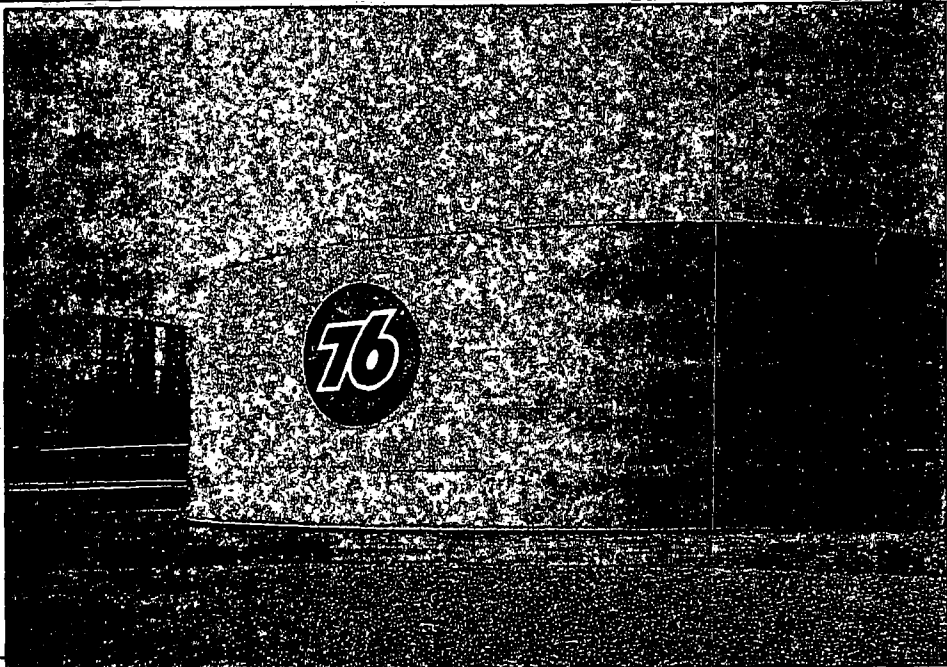




State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

INSPECTION PHOTOS

DATE: 09/05/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD: South		
COMMENTS: West Tank Farm		
ROLL #: F		
PHOTO #: 22		

DATE: 09/05/96	SITE #: 1978030004	CO.: Will
TIME:	SITE NAME: UNO-VEN, Chicago Refinery	
PHOTOGRAPH TAKEN BY: Terri Blake Myers	FILE:	
PICTURE TAKEN TOWARD:		
COMMENTS:		
ROLL #:		
PHOTO #:		

B.